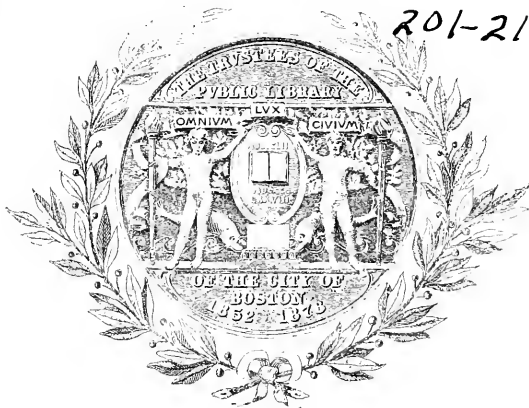




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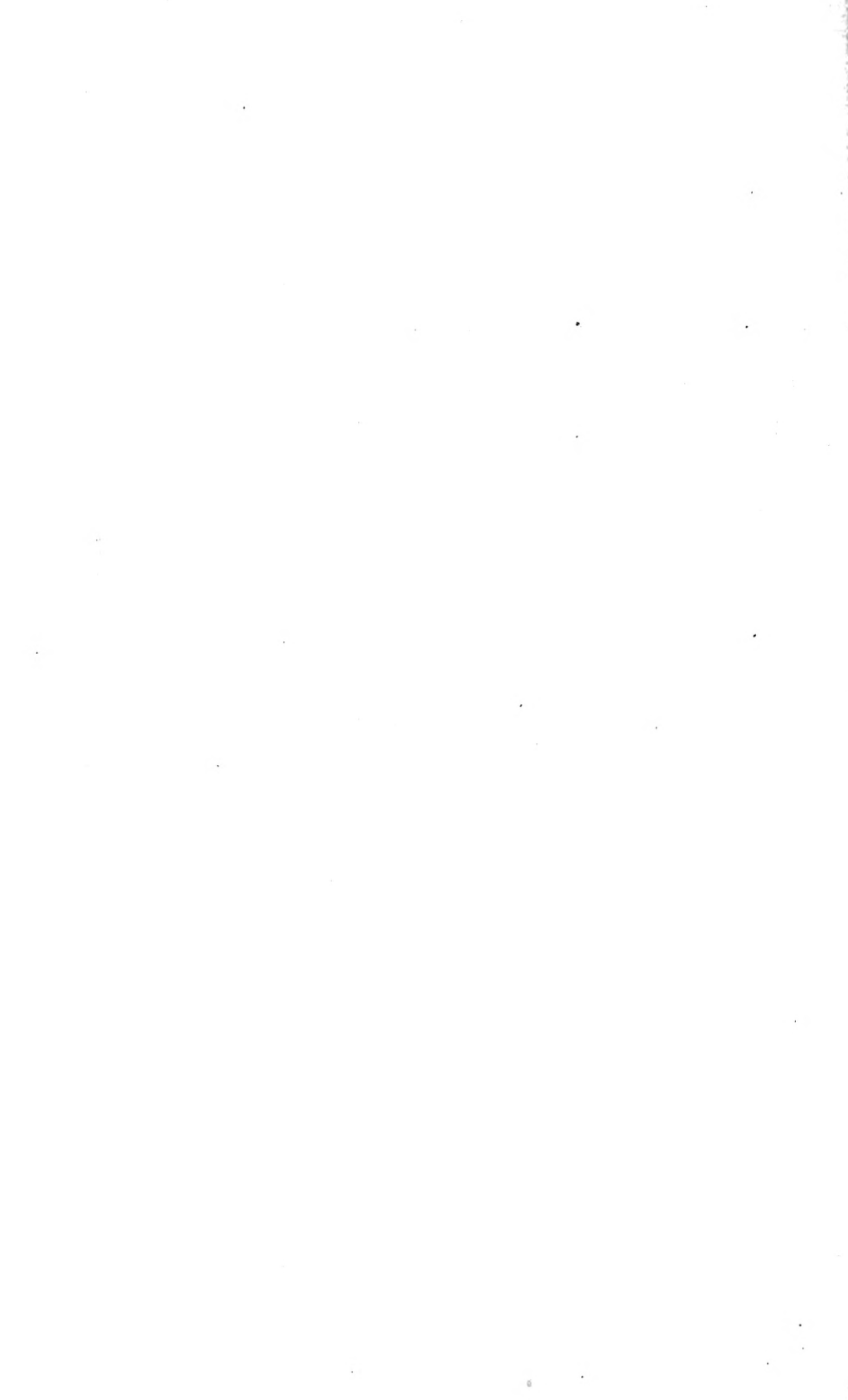
UNITED STATES DEPARTMENT OF LABOR  
CHILDREN'S BUREAU - - - - PUBLICATION No. 203

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**THE PROMOTION OF THE WELFARE  
AND HYGIENE OF MATERNITY  
AND INFANCY**

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THE ADMINISTRATION OF THE ACT OF CONGRESS OF  
NOVEMBER 23, 1921, FOR FISCAL YEAR ENDED JUNE 30, 1929



UNITED STATES DEPARTMENT OF LABOR

W. N. DOAK, Secretary

CHILDREN'S BUREAU

GRACE ABBOTT, Chief

# THE PROMOTION OF THE WELFARE AND HYGIENE OF MATERNITY AND INFANCY

THE ADMINISTRATION OF THE ACT OF CONGRESS  
OF NOVEMBER 23, 1921

FISCAL YEAR ENDED JUNE 30, 1929



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## LETTER OF TRANSMITTAL

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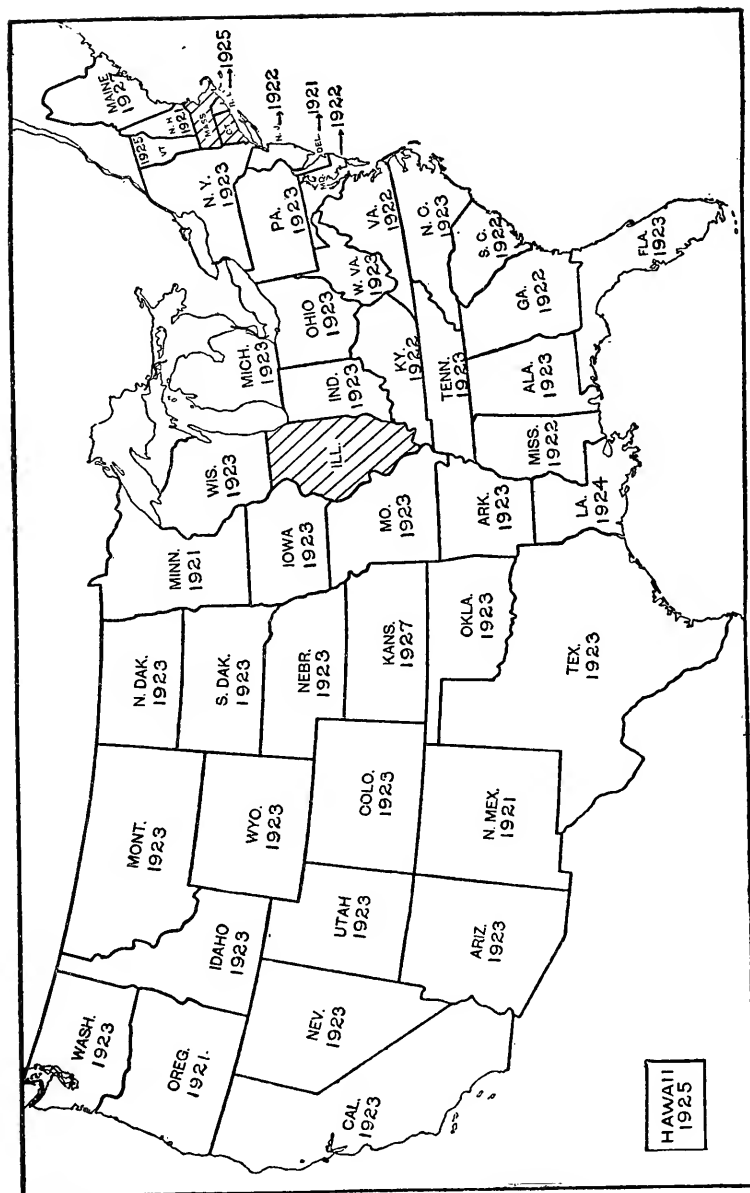
UNITED STATES DEPARTMENT OF LABOR,  
CHILDREN'S BUREAU,  
*Washington, December 15, 1930.*

SIR: There is transmitted herewith the report of the administration of the maternity and infancy act for the fiscal year ended June 30, 1929, prepared under the direction of Dr. Blanche M. Haines, director of the maternity and infant-hygiene division of the bureau.

Respectfully submitted.

GRACE ABBOTT, *Chief.*

HON. W. N. DOAK,  
*Secretary of Labor.*



STATES ACCEPTING THE BENEFITS OF THE ACT FOR THE PROMOTION OF THE WELFARE AND HYGIENE OF MATERNITY AND INFANCY, WITH DATES OF LEGISLATIVE ACCEPTANCE

[Diagonal lines indicate States not cooperating]

# THE PROMOTION OF THE WELFARE AND HYGIENE OF MATERNITY AND INFANCY

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## INTRODUCTION

On June 30, 1929, Federal aid to the States under the maternity and infancy act—sometimes called the Sheppard-Towner Act—which was passed by the Sixty-seventh Congress and approved by the President in November, 1921, came to an end. The appropriation for the promotion of the welfare and hygiene of maternity and infancy authorized by the act was \$1,240,000 annually for a 5-year period, which ended with the close of the fiscal year 1927. This period was extended by a bill which passed Congress in January, 1927, authorizing a similar appropriation for the fiscal years 1928 and 1929 and providing that the act should be of no force and effect after June 30, 1929.<sup>1</sup>

During the fiscal year 1929 all the States in the Union except Connecticut, Illinois, and Massachusetts—also the Territory of Hawaii, to which the benefits of the act were extended in 1924—cooperated with the Federal Government in an effort to promote the hygiene of maternity and infancy.

## FUNDS AVAILABLE AND ACCEPTED BY THE STATES

The funds authorized by the maternity and infancy act first became available in March, 1922. The administration of the funds from that date to June 30, 1928, has been reported.<sup>2</sup> Table 1 shows the amounts available and the total amounts accepted by the States from the appropriations for the fiscal years 1922 to 1929. At the close of the fiscal year ended June 30, 1929, unexpended or unobligated Federal maternity and infancy funds reverted to the Treasury of the United States.

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<sup>1</sup> For text of the acts of Congress in regard to the promotion of the welfare and hygiene of maternity and infancy see Appendix A, p. 127.

<sup>2</sup> The Promotion of the Welfare and Hygiene of Maternity and Infancy. United States Children's Bureau Publications Nos. 137, 146, 156, 178, 186, and 194. Washington, 1924-1929.

TABLE 1.—Amounts available to States and Hawaii from Federal maternity and infancy funds and amounts accepted, 1922 to 1929 1

[Final statement]

States and Territory cooperating	Maximum amounts available from 1922 appropriation 2	Amounts accepted by States from 1922 appropriation	Maximum amounts available from 1923, 1924, 1925, 1926, 1927, 1928, and 1929 appropriations	Amounts accepted by States and Hawaii from—						1929 appropriation 3
				1923 appropriation	1924 appropriation	1925 appropriation	1926 appropriation	1927 appropriation	1928 appropriation	
Total.....	\$477,500.00	\$316,554.02	\$1,201,725.96	\$716,333.40	\$877,122.04	\$932,754.69	\$948,313.59	\$957,458.84	\$957,470.29	\$776,576.54
Alabama.....	10,297.56	10,297.56	25,836.95	25,836.95	25,836.95	25,836.95	25,836.95	25,836.95	25,836.95	25,836.95
Arizona.....	5,753.88	5,000.00	12,253.71	5,000.00	12,253.71	12,253.71	12,253.71	12,253.71	12,253.71	1,263.25
Arkansas.....	8,953.03	5,000.00	21,817.51	6,855.75	13,500.00	13,500.00	14,000.00	12,000.00	21,817.51	14,182.49
California.....	12,731.12	(6)	33,112.01	24,279.35	13,114.93	15,930.00	26,730.00	30,130.00	29,130.00	30,229.18
Colorado.....	7,119.83	5,000.00	16,337.20	9,976.99	9,999.33	9,999.37	10,000.00	10,000.00	9,942.55	5,000.00
Connecticut.....	8,114.75	5,000.00	19,311.48	9,655.74	11,504.01	11,504.01	11,504.01	11,504.01	11,504.01	11,504.01
Delaware.....	5,503.10	5,000.00	16,531.72	8,621.28	16,531.72	16,531.72	16,531.72	16,531.72	16,531.72	16,531.72
Florida.....	7,184.90	5,000.00	29,530.55	11,000.00	15,250.00	28,490.00	29,530.00	29,530.55	29,530.55	22,815.93
Georgia.....	11,537.10	6,750.00	11,725.96	11,000.00	15,250.00	11,725.96	9,933.93	11,725.96	11,725.96	5,000.00
Hawaii.....	5,974.30	5,000.00	7,912.66	6,250.00	7,912.66	5,691.60	9,308.40	6,000.00	7,500.00	7,450.17
Idaho.....	19,631.03	(6)	53,739.10	24,965.00	26,250.00	25,750.00	25,000.00	25,000.00	25,000.00	24,867.71
Illinois.....	11,611.07	8,199.09	29,763.62	26,213.60	26,213.60	26,213.60	26,213.60	26,213.60	26,213.60	23,364.41
Indiana.....	10,423.56	8,491.51	26,213.60	12,097.33	26,213.60	26,213.60	26,213.60	26,213.60	26,213.60	5,000.00
Iowa.....	8,991.51	10,452.00	21,932.52	26,208.64	26,208.64	26,208.64	26,208.64	26,208.64	26,208.64	26,208.64
Kansas.....	10,452.00	10,452.00	26,208.64	26,208.64	26,208.64	26,208.64	26,208.64	26,208.64	26,208.64	26,208.64
Kentucky.....	9,057.50	7,913.57	13,179.77	17,590.00	17,590.00	22,127.79	21,664.27	19,400.70	7,521.00	5,000.00
Louisiana.....	6,732.06	7,913.57	13,179.77	19,277.05	19,277.05	19,104.58	19,277.00	14,926.52	5,000.00	14,999.48
Maine.....	8,270.49	13,691.06	19,777.05	34,741.11	34,741.11	34,741.11	34,741.11	34,741.11	34,741.11	19,277.00
Maryland.....	13,691.06	13,253.97	34,741.11	26,099.65	34,741.11	34,741.11	34,741.11	34,741.11	34,741.11	33,670.35
Massachusetts.....	13,276.07	10,385.44	26,099.65	26,099.65	26,099.65	26,099.65	26,099.65	26,099.65	26,099.65	22,076.58
Michigan.....	10,385.44	9,039.70	22,076.58	22,076.58	22,076.58	22,076.58	22,076.58	22,076.58	22,076.58	22,076.58
Minnesota.....	9,039.70	12,473.15	32,958.19	28,527.38	21,762.17	24,000.00	25,000.00	21,000.00	24,186.81	12,578.11
Mississippi.....	12,679.67	6,238.31	13,701.91	13,701.91	13,701.91	13,701.91	13,701.91	13,701.91	13,701.91	12,578.11
Missouri.....	6,238.31	7,924.66	18,743.21	17,661.69	7,409.50	11,915.00	12,980.00	11,000.00	13,700.00	12,578.11
Montana.....	7,924.66	5,000.00	18,743.21	17,661.69	7,409.50	11,915.00	12,980.00	11,000.00	13,700.00	12,578.11
Nebraska.....	5,174.63	5,000.00	12,988.31	5,000.00	10,522.00	10,522.00	10,522.00	10,522.00	10,522.00	5,337.15
Nevada.....	5,999.61	12,119.83	12,988.31	5,000.00	12,988.31	12,988.31	12,988.31	12,988.31	12,988.31	12,988.31
New Hampshire.....	12,119.83	5,812.96	31,284.55	31,284.55	31,284.55	31,284.55	31,284.55	31,284.55	31,284.55	31,284.55
New Jersey.....	12,119.83	5,812.96	31,284.55	31,284.55	31,284.55	31,284.55	31,284.55	31,284.55	31,284.55	31,284.55
New Mexico.....	28,429.70	10,773.47	80,041.78	27,259.66	80,041.78	80,041.78	80,041.78	80,041.78	80,041.78	65,369.17
New York.....	10,773.47	10,773.47	27,259.66	27,259.66	27,259.66	27,259.66	27,259.66	27,259.66	27,259.66	27,259.66
North Carolina.....	10,773.47	10,773.47	27,259.66	27,259.66	27,259.66	27,259.66	27,259.66	27,259.66	27,259.66	27,259.66
North Dakota.....	6,459.36	17,983.41	48,843.46	11,900.00	17,297.89	26,606.96	8,300.00	6,600.00	23,585.57	5,000.00
Ohio.....	17,983.41	7,187.95	48,843.46	11,900.00	17,297.89	26,606.96	8,300.00	6,600.00	23,585.57	5,000.00
Oklahoma.....	9,575.88	5,000.00	23,679.48	5,000.00	23,679.48	23,679.48	23,679.48	23,679.48	23,679.48	23,626.67

Oregon.....	6,767.35	6,232.61	15,283.46	8,000.00	15,283.46	11,966.83	15,283.46	15,283.46	3,418.20
Pennsylvania.....	24,672.69	24,667.12	68,810.99	68,810.20	68,810.99	68,810.99	68,810.99	68,810.99	68,810.99
Rhode Island.....	6,363.54		14,076.28		4,996.86	14,076.28	14,076.28	14,076.28	5,000.00
South Carolina.....	8,798.54	8,797.50	21,355.65	21,355.65	21,355.65	21,355.65	21,355.65	21,355.65	21,333.90
South Dakota.....	6,436.07	6,436.07	14,293.11	12,844.24	14,272.92	13,451.18	14,285.10	5,000.00	5,000.00
Tennessee.....	10,274.35	5,000.00	25,767.55	18,521.94	22,410.73	25,767.55	25,767.55	25,767.55	24,708.78
Texas.....	15,520.41	9,363.93	41,450.52	32,567.38	40,689.20	40,447.84	35,350.52	41,450.52	32,655.34
Utah.....	6,013.85	5,000.00	13,030.89	6,363.00	13,000.00	13,000.00	13,000.00	12,500.00	4,243.19
Vermont.....	5,795.09	(c)	12,376.90		2,775.33	4,281.36	4,937.38	5,000.00	3,497.12
Virginia.....	10,200.61	10,209.61	25,574.00	25,574.00	25,574.00	25,574.00	25,574.00	25,574.00	25,574.00
Washington.....	8,060.58	4,998.70	19,149.55	10,000.00	10,000.00	10,000.00	5,000.00	5,000.00	5,000.00
West Virginia.....	8,302.16	5,000.00	19,871.74	5,000.00	10,000.00	10,000.00	19,871.74	19,871.74	19,871.74
Wisconsin.....	10,938.04	8,995.03	27,751.62	27,750.44	27,751.62	27,751.62	27,751.62	27,751.62	5,000.00
Wyoming.....	3,438.57	4,998.87	11,311.12	5,000.00	11,000.00	6,600.00	7,500.00	7,500.00	5,500.00

<sup>1</sup> Under the terms of the act, each State accepting received \$5,000 outright; an additional \$5,000 was available to each State if matched; the balance of the appropriation was distributed among the States, if matched, on the basis of population. Amounts shown are the amounts actually accepted by the States less refunds of unexpended balances returned to the Federal Treasury.

<sup>2</sup> Owing to the fact that only a few months of the 1922 fiscal year remained at the time the appropriation act for that year was passed, a full appropriation was not made.

<sup>3</sup> The 1929 appropriations were available for one year only. Previous appropriations were available for 2-year periods under the provision that "so much of the amount apportioned to any State for any fiscal year as remains unpaid to such State at the close thereof shall be available for expenditures in that State until the close of the succeeding fiscal year," (42 Stat. 224, sec. 2). As both the original act and the appropriations under it terminated June 30, 1929 (44 Stat. 1024), the Comptroller General of the United States ruled that no funds appropriated under the act could be expended after June 30, 1929 (decision of Apr. 9, 1928, MS. Comp. Gen. A-22370).

<sup>4</sup> The benefits of the act were extended to Hawaii on Mar. 10, 1924. No appropriation therefor was available to that Territory in 1923 and 1924. The total amount available to the States in each year from 1923 to 1929 was \$1,190,000.

<sup>5</sup> California and Illinois accepted the full amount available, and Vermont accepted \$5,000. However, these funds were not spent, but were returned to the Federal Treasury.

## SUMMARY OF STATE ACTIVITIES DURING 1929

General plans of work under the maternity and infancy act for the year 1929, as submitted by the cooperating States for the approval of the Federal Board of Maternity and Infant Hygiene,<sup>3</sup> did not differ essentially from the plans of former years.

The education of the public in regard to the hygiene of mothers and young children was continued. Instruction was given to individual parents by physicians and nurses at health conferences and by nurses in visits to homes. Lectures, talks, and class work contributed to the information of physicians, nurses, teachers, mothers, young girls, and midwives. Literature relating to maternal and infant care prepared by both State and Federal agencies was widely distributed.

Increasing stress was placed on measures directed toward the prevention of disease in children and of abnormal conditions at child-birth. Many campaigns were conducted for immunization against diphtheria, vaccination against smallpox, and the wider distribution of nitrate of silver for use in the prevention of ophthalmia neonatorum. In several States surveys were made of maternal and infant mortality and morbidity in order to arrive at a clearer understanding of their causes.

Investigations, surveys, and studies of agencies caring for mothers and babies—including infant homes, maternity homes and hospitals, and day nurseries—were reported by some of the States. Work with midwives occupied an important place in the plans of those in which a large number of births are attended by midwives. Many States gave much attention to stabilizing their maternity and infancy programs and establishing the work on a permanent basis. This included securing from State legislatures appropriations for maternity and infancy work equal to the amounts previously received from both Federal and State appropriations, also securing financial support for local child-health centers, for county infant and maternal health programs, and for community nursing services by interested local agencies or groups.

### PERSONNEL OF THE ADMINISTRATIVE STAFFS

Plans of work and the size of the budget have determined from year to year the number and type of personnel employed in the States to conduct the work. Physicians, nurses, dentists or dental hygienists, nutritionists, social workers, field workers, and clerical and other assistants were on the staffs of the State bureaus and divisions of child hygiene. Changes in plans or types of work required corresponding changes to be made in the staff personnel.

The administration of the maternity and infancy act was vested in the State health agency<sup>4</sup> in the Territory of Hawaii and in all the

<sup>3</sup> The Board of Maternity and Infant Hygiene was composed of the Chief of the United States Children's Bureau, the Surgeon General of the United States Public Health Service, and the United States Commissioner of Education (42 Stat. 224, sec. 3; see p. 127).

<sup>4</sup> In Nebraska and New Mexico the administrative agency was in the State bureau of public health, which is a part of the State department of public welfare. In Idaho the administrative agency was in the State department of public welfare (which replaces the previous State board of health).



cooperating States except two. In one of these (Colorado) the administration of the act was given by the legislature to the bureau of child welfare already existing in the State department of public instruction; in the other (Iowa) the administration was given by the legislature to the State board of education, with the provision that the State university should be in actual charge of the work done. The faculty of the medical school of the university constituted the medical advisory committee in this State.

During all or part of the year 1929 physicians were directors of the divisions in immediate charge of the work in 31 States: Arkansas, California, Delaware, Georgia, Idaho, Indiana, Kansas, Kentucky, Maryland, Michigan, Minnesota, Mississippi, Missouri, Montana, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, Tennessee, Texas, Utah, Vermont, Virginia, West Virginia, Wisconsin, and Wyoming. In five of these States—Arkansas, Mississippi, Oregon, Vermont, and Wyoming—the State health officer was in direct charge of the State administration of the act. Field supervising nurses assisted in four of these States—Arkansas, Mississippi, Oregon, and Vermont—and county nurses assisted in the fifth (Wyoming). Nurses served as directors in the Territory of Hawaii and in nine States: Alabama, Florida, Maine, Nebraska, New Hampshire, New Mexico, South Carolina, South Dakota, and Washington.

Including State directors paid from maternity and infancy funds but not including the 41 physicians who were at the head of the State departments of health charged with the administration of the act, 35 physicians were employed on full time during the entire year and 28 physicians were employed on full time for part of the year in the maternity and infancy program. Part time was given during the entire year by 19 physicians and during part of the year by 8 other physicians. A number of States employed additional physicians for occasional service, and 1,614 physicians gave volunteer service in 17 States and Hawaii. Usually volunteer or occasional medical service was given for conference or consultation centers. The physicians regularly employed served as directors, conducted child-health and prenatal conferences, instructed classes in infant and prenatal care and classes for midwives, and conducted special work in the prevention of diseases of mothers and of preschool children.

Public-health nurses were employed either at staff headquarters or as county nurses in the Territory of Hawaii and 45 cooperating States, 181 on a full-time basis during the entire year, 85 on full time part of the year, and 26 for part time during the year.

In a number of States nurses were detailed to counties and paid from maternity and infancy funds in proportion to the time given to maternity and infancy work. Forty gave full-time service for the entire year, 37 gave full-time service during part of the year, 163 gave part-time service for the year, and 154 were detailed for part time for part of the year. Pennsylvania paid from maternity and infancy funds about 135 nurses on a basis of time spent in maternity and infancy work during the year. Approximately 900 nurses were paid in full or in part from maternity and infancy funds, and more than 700 additional nurses gave volunteer service. Nurses served not only as administrators of 10 of the divisions or bureaus of child hygiene, but also as supervisors and advisors of county and field

nurses, and as instructors of groups of midwives and classes in infant and prenatal care. They visited the homes of infants and preschool children and expectant mothers, established and assisted at health centers, organized conferences and assisted at them, inspected maternity and infant homes, conducted demonstrations and exhibits in the interest of better care for babies and for expectant mothers, promoted campaigns for breast feeding and for birth registration, made surveys, assisted with immunization work, and organized many types of activities.

A few States employed dentists or dental hygienists to do educational work to improve the condition of the teeth among preschool children and expectant mothers. Three were employed on full time and one on part time during the year, and nine were employed on full time for part of the year. Additional dentists were employed occasionally. Volunteer service was given by more than 300 dentists.

Supervision and instruction of midwives were accomplished through the services of special personnel on the State headquarters staffs and also through the work of county nurses. Four States—New York, Pennsylvania, Tennessee, and Virginia—employed six supervisors and instructors of midwives; three of these were physicians and three were nurses. Maryland employed a supervisor for part of the year, and Mississippi had a part-time supervisor for the year. County or community nurses supervised or instructed midwives in many other States.

Four inspectors of maternity and infant homes were employed in three States—three for the year and another on part time for part of the year.

A total of 121 stenographers and clerks were employed for the year; 49 others were employed part of the year, 12 gave only part-time service for the year, and 7 were employed part time for part of the year. Two States—Nevada and South Dakota—had no stenographers nor clerks on their maternity and infancy staffs. Sixty-two additional workers were employed, including nutritionists, lecturers and publicity workers, a statistician, motion-picture operators, and chauffeurs for child-welfare trucks. Lay persons numbering 4,683 gave volunteer service at conferences and in other ways in 15 States and Hawaii. To summarize—a total of 1,054 persons were regularly paid from maternity and infancy funds, and the volunteer workers reported by 20 States and Hawaii numbered 7,339.

### CONFERENCES

During the year under review each of the 45 cooperating States and the Territory of Hawaii demonstrated methods of reaching the individual child and his parents with information on child care and maternal care by child-health and prenatal conferences.

Thirteen States—Delaware, Georgia, Kentucky, Minnesota, Nevada, New York, North Carolina, North Dakota, South Dakota, Utah, Virginia, Wisconsin, and Wyoming—reported holding 6,198 combined prenatal and child-health conferences conducted by physicians; 3,810 expectant mothers were registered and 3,396 were examined at such conferences and 12,461 visits were made to them. The number of infants and preschool children registered at the conferences was 49,151, and the number examined was 48,681; 63,167

visits were made to the conferences by infants and preschool children. North Carolina led in the number of this type of conference reported (3,436) and New York was second (1,095). North Carolina also led in the number of children reported examined (15,323) and Utah was second (10,189). New York led in the number of expectant mothers reported examined (2,330) and North Carolina was next (675).

Child-health conferences conducted by physicians were reported by the Territory of Hawaii and 39 States: Alabama, Arizona, Arkansas, California, Colorado, Delaware, Florida, Georgia, Idaho, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New Mexico, New York, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Vermont, Virginia, Washington, West Virginia, and Wyoming. The number of children reported registered in child-health conferences conducted by the bureaus or divisions of child hygiene was 163,864 in 38 States; the number examined was 173,963 in these 38 States and also in an additional State that did not report the number registered. The number of visits of infants and preschool children to such conferences was 306,837. Pennsylvania led in the number of child-health conferences held (5,322), also in the number of children examined (16,706). Alabama was second in the number of conferences held (1,402). Indiana was second in the number of children examined at such conferences (13,172).

Prenatal conferences conducted by physicians were reported by 17 States: Alabama, Arkansas, California, Colorado, Delaware, Georgia, Maryland, Michigan, Mississippi, New Jersey, New York, Oregon, Pennsylvania, South Carolina, Tennessee, Texas, and Virginia. The number of conferences held was 2,352; 8,019 expectant mothers were reported registered and 9,749 were examined; 1 State reported 1,897 expectant mothers examined but did not report the number registered. A total of 22,199 visits were made to the conferences by expectant mothers. Georgia led in the number of prenatal conferences reported (504) and in the number of expectant mothers examined (2,232). New York was second in the number of conferences (396). Alabama was second in the number of women examined (1,897) and Mississippi was third (1,202).

Nurses conducted a total of 10,124 conferences in the Territory of Hawaii and 27 States: Alabama, Arizona, Arkansas, California, Colorado, Delaware, Florida, Georgia, Idaho, Iowa, Kansas, Louisiana, Maine, Maryland, Michigan, Missouri, Nevada, New Jersey, New Mexico, New York, Ohio, Oregon, South Carolina, Tennessee, Texas, Virginia, and Wyoming. One State did not report the number of conferences held, though it reported the number of children inspected and of mothers instructed in prenatal care. The total number of children inspected at conferences conducted by nurses was 59,350. The number of mothers instructed in prenatal care was 6,629. Children made 129,190 visits to such conferences, and mothers made 15,108 visits. Missouri led in the number of conferences reported (4,347) and Delaware was second (832). Missouri led in the number of children inspected (22,496) and Iowa in the number of mothers instructed in prenatal care (3,708).

Dental conferences conducted by dentists were reported by 16 States: Arizona, California, Colorado, Kansas, Louisiana, Maine,

Maryland, Mississippi, Missouri, Oklahoma, Oregon, South Carolina, Texas, Utah, Virginia, and West Virginia. The number of conferences held was 1,134; 1,305 expectant mothers and 22,969 preschool children were instructed or given dental examination. Mississippi reported the largest number of such conferences (384), also the largest number of expectant mothers (1,202) and of preschool children (8,876) instructed or examined. The number of expectant mothers advised or examined by dentists was 1,125 greater in 1929 than in the preceding year.

At conferences of all these types a total of 21,079 expectant mothers were examined by physicians or were advised or instructed by nurses and dentists on some phase of prenatal care.<sup>5</sup> Fewer inspections of children by nurses were reported, and fewer expectant mothers were advised in nurses' conferences than in the preceding year; but 2,778 more children were reported examined by physicians than in the preceding year.

Table 2 summarizes the conference work in the cooperating States and the Territory of Hawaii during the year ended June 30, 1929.

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<sup>5</sup> This figure may involve some duplication, as some of the same persons may have attended conferences of different types.

TABLE 2.—Conferences held and permanent centers established in the States and the Territory of Hawaii cooperating under the maternity and infancy act during the year ended June 30, 1929

States and Territory cooperating	Conferences conducted by physicians											Conferences conducted by nurses				Conferences conducted by dentists		New health centers established 1				
	Combined prenatal and child health			Child health			Prenatal					Conferences conducted by nurses				Conferences conducted by dentists						
	Ex-pect-ant moth-ers regis-tered		Chil-dren regis-tered	Num-ber of con-fer-ences	Chil-dren regis-tered	Num-ber of con-fer-ences	Ex-pect-ant moth-ers regis-tered	Num-ber of con-fer-ences	Chil-dren in-struct-ed	Visits to conferences by—		Num-ber of con-fer-ences	Persons re-ceiving den-tal advice		Com-bined pre-natal and child health	Child health pre-natal						
	Ex-pect-ant moth-ers	Chil-dren								Chil-dren	Moth-ers		Ex-pect-ant moth-ers	Chil-dren								
Total.....	6, 198	3, 810	49, 151	12, 461	63, 167	16, 933	163, 864	306, 837	2, 352	8, 019	22, 199	10, 124	59, 350	6, 629	129, 190	15, 108	1, 134	1, 305	22, 969	65	127	19
Alabama.....						1, 402	3, 998	10, 585	223	(1)	2, 323	375	307	16	353	5, 218	2					
Arizona.....						28	451	1, 091	5	66	66	26	307	80	692	(1)		56				
Arkansas.....						261	4, 199	4, 199	154	418	1, 411	115	2, 436	228	9, 500	228	74	736			3	
California.....						93	8, 801	12, 629	154	7	35	12	2, 436	301	14, 964	712	52	1, 983			11	1
Colorado.....						56	2, 274	2, 274	7	196	374	832	4, 749	261	4, 749	556						
Delaware.....						293	967	3, 004	52			269	4, 749	261	4, 749	556	(1)	(1)	(1)		4	
Florida.....						2, 212	2, 212	2, 212	504			237	2, 402	261	2, 844	824					6	6
Georgia.....						492	3, 668	5, 248		2, 232	5, 568	414	1, 947	436	5, 864					6	2	2
Hawaii.....						846	4, 083	16, 444				30	1, 988									
Idaho.....						68	2, 447	2, 447														
Indiana.....						572	13, 217	13, 229														
Iowa.....						187	3, 927	3, 927														
Kansas.....						176	4, 854	4, 854				107	3, 708	3, 708	3, 708	12	41	1, 042				
Kentucky.....						120	3, 276	3, 276				4	95	12	95	12					9	
Louisiana.....						132	2, 692	3, 133				33	1, 889	18	1, 992	59	23	2, 487				
Maine.....						184	1, 458	2, 153				41	143	31	231		2	31				
Maryland.....						456	7, 199	7, 199				57	498	65	538	306	61	570				
Michigan.....						14	987	987				30	100	250	200	400						
Minnesota.....						1	8	396														
Mississippi.....						429	6, 728	6, 728														
Missouri.....						553	10, 188	15, 981				4, 347	22, 496	250	42, 680	405	41	8, 876			7	4
Montana.....						170	5, 776	5, 776				(1)	(1)	(1)	(1)	(1)	(1)	(1)	1, 202	476	1	1
Nebraska.....						38	1, 163	1, 163											(1)	(1)		

<sup>1</sup> New permanent health centers whose support has been assumed wholly or in part by the respective counties or communities in the majority of the States.<sup>2</sup> Not reported.

TABLE 2.—Conferences held and permanent centers established in the States and the Territory of Hawaii cooperating under the maternity and infancy act during the year ended June 30, 1929—Continued

States and Territory cooperating	Conferences conducted by physicians										Conferences conducted by nurses					Conferences conducted by dentists		New health centers established		
	Combined prenatal and child health					Child health					Prenatal					Persons receiving dental advice	Combined prenatal and child health			
	Visits to conferences by—			Num-ber of con-fer-ences	Child- dren regis-tered	Num-ber of con-fer-ences	Ex-pect-ant moth-ers regis-tered	Num-ber of con-fer-ences	Child- dren in-structed	Visits to conferences by—		Num-ber of con-fer-ences	Persons re-ceiving dental advice							
	Ex-pect-ant moth-ers regis-tered	Child- dren regis-tered	Ex-pect-ant moth-ers							Child- dren	Mothers		Chil- dren	Ex-pect-ant moth-ers	Chil- dren					
Nevada	32	16	201	16	201	98	2,968	2,968				93	1,203	180	1,203	180			2	1
New Hampshire						( <sup>1</sup> )	5,600	29,413	125	750	3,074	562	2,717	13,481	69	56			12	1
New Jersey						11	121					2	61	( <sup>2</sup> )	( <sup>2</sup> )			1		
New Mexico	1,095	2,471	2,978	10,204	3,378	824	( <sup>2</sup> )	12,640	396	933	3,012	806	( <sup>2</sup> )	3,100	1,413					
New York	3,436	675	15,323	1,474	20,586							( <sup>2</sup> )	4,609	474	7,580	663			22	3
North Carolina	245	61	7,226	61	7,226														1	
North Dakota						92	4,343	4,343				26	185	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )				
Ohio						144	4,978	4,978												
Oklahoma						208	2,315	2,810	209	928	1,664	21	69	69					9	
Oregon						5,322	16,706	76,153	300	364	1,556								17	1
Pennsylvania						226	728	3,682											2	1
Rhode Island						119	2,944	2,944	45	537		2		14	14				1	
South Carolina																				
South Dakota	90	108	3,102	108	3,102														296	1
Tennessee						593	5,791	8,464	12	80	360	276	749	150	3,591	309			2	
Texas						284	4,967	6,165	7	14	55	494	4,530	14	6,198	31			60	5
Utah	541	80	10,216	80	12,747														24	8
Vermont						23	609	609											38	
Virginia						935	9,283	15,928	94	70	349	822	3,657	174	7,745	( <sup>2</sup> )			2	
Washington	30	6	469	12	469														231	14
West Virginia						90	5,601	5,601											11	9
Wisconsin	541	153	7,094	206	12,464														492	8
Wyoming	57	26	1,144	26	1,144	67	1,683	1,683				4	78	78					13	3

1 Not reported.

2 A total of 7,681 visits to nurses' conferences was reported; apparently this figure includes visits by other mothers in addition to the 174 instructed in prenatal care.

## PERMANENT PRENATAL AND CHILD-HEALTH CENTERS

The establishment of permanent prenatal or child-health centers—or combined prenatal and child-health centers—has been in many instances a result of itinerant or occasional child-health conferences held by the State in towns and rural districts. In some communities the permanent center has developed as an expansion of the health program in a county health department. Later the maintenance of the center has been assumed as part of the community's responsibility for the hygiene and welfare of its mothers and babies.

Three types of local centers have been developed in the maternity and infancy work in the States: Combined prenatal and child-health centers at which mothers, infants, and preschool children are examined and advice relating to their welfare is given; centers for children only; and prenatal centers for expectant mothers only. During the year under review 65 new permanent combined prenatal and child-health centers were established in 10 States: Delaware, Florida, Georgia, New York, North Carolina, South Carolina, Tennessee, Utah, Virginia, and Wisconsin. The largest number established in any one State was 22 (in New York). The next largest was 13 (in Wisconsin). Child-health centers numbering 127 were established in Hawaii and 19 States: Arkansas, California, Georgia, Idaho, Kentucky, Missouri, Montana, New Hampshire, New Jersey, New Mexico, New York, Oregon, Pennsylvania, Rhode Island, South Carolina, Texas, Virginia, Washington, and West Virginia. Pennsylvania led in the number of new child-health centers during the year (17) and Virginia was second (14). The establishment of 19 new permanent prenatal centers was reported by 9 States: California, Georgia, Mississippi, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and South Carolina. Georgia led with 6 new centers of this type, and Mississippi was second with 4.

Table 2 shows the number of new health centers established in the cooperating States and the Territory of Hawaii during the year ended June 30, 1929.

## DEFECTS FOUND AT CONFERENCES

It is not the purpose of the child-health conference to hold examinations or consultations for the obviously ill child or baby. Sick children, if brought to the conferences, are referred to their family physicians or other agencies for care and treatment. The object of the child-health conference is to examine and supervise the supposedly well child and thus prevent the development of deviations from the normal by teaching parents correct standards of care.

However, many defects are found in the babies and preschool children brought to conferences. The attention of parents is directed to the defects found in their children, and they are advised to consult their family physicians in regard to methods of correction. The correction of defects is increased through the work of nurses in follow-up visits and the check-ups made in regard to corrections and improvement. Although the State, county, and community nursing personnel has usually not been sufficient to help or persuade all the parents to have all needed corrections made or to ascertain the number that have been made, a number of States reported the approximate

number of defects corrected during the year under review. For example, Alabama reported 1,363 defects found in 1,218 children and 553 corrections made. Utah reported 18,716 defects in 8,265 children and 2,659 corrections.

The reports from State bureaus or divisions of child hygiene that classified defects by age groups showed a larger proportion of defects in children as they approached the age at which they would enter school. Recognition of this condition has led to cooperation with parents and schools in arranging conferences in the spring for the examination of preschool children who would enter school in the fall. Attempts were then made to have the defects found all corrected during the summer so that the child might start to school free from physical handicaps. This type of work was developed largely through the "summer round-up" of children promoted and sponsored by the National Congress of Parents and Teachers in cooperation with the State bureaus and divisions of child hygiene and local health agencies. As this type of work increased, the number of children having defects corrected increased.

### COUNTY HEALTH DEPARTMENTS AND COUNTY NURSES

In 29 States maternity and infancy funds were allotted to the counties for payment in whole or in part of a part-time or full-time maternal and infant nursing service within the counties.

The development of county health departments with full-time health officers in charge created a demand for special assistance with maternity and infancy programs in the counties having such departments. Maternity and infancy nurses were also employed in counties not having such departments. Frequently the nurse conducted a demonstration in rural child-health work which aroused a demand on the part of the community for a full-time health department.

The number of nurses paid in full or in part from maternity and infancy funds for county work in these 29 States was 394.<sup>6</sup>

The number of counties in the 29 States receiving aid from maternity and infancy funds during the year under review and the number of counties so aided that had county health departments were as follows:

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<sup>6</sup> This figure does not include the 11 town and city nurses subsidized in Virginia nor the nurses in the public health nursing division of the State department of health in Pennsylvania paid in part from maternity and infancy funds.



State	Counties receiving aid from maternity and infancy funds during the fiscal year ended June 30, 1929		State	Counties receiving aid from maternity and infancy funds during the fiscal year ended June 30, 1929	
	Total	Number having full-time local health officers on Jan. 1, 1929		Total	Number having full-time local health officers on Jan. 1, 1929
Total.....	361	208	New York.....	1	1
Alabama.....	31	31	North Carolina.....	22	20
Arkansas.....	34	23	Ohio.....	6	3
California.....	14	4	Oklahoma.....	4	4
Georgia.....	20	14	Oregon.....	6	6
Idaho.....	1	—	Pennsylvania.....	12	—
Kansas.....	8	7	South Carolina.....	1	1
Kentucky.....	1	1	Tennessee.....	23	21
Maryland.....	18	8	Texas.....	26	3
Michigan.....	3	2	Utah.....	3	3
Mississippi.....	13	13	Virginia.....	24	13
Missouri.....	13	10	Washington.....	2	1
Montana.....	11	3	West Virginia.....	16	11
Nevada.....	16	—	Wisconsin.....	1	—
New Mexico.....	4	4	Wyoming.....	17	1

<sup>1</sup> Aid was to specific communities in counties.<sup>2</sup> Eleven cities and towns also received aid.

The total number of counties in the 45 cooperating States was 2,948. The number of counties receiving assistance from maternity and infancy funds in the employment of public-health nurses to devote full or part time to maternity and infancy work was 361, and 208 of these counties had full-time health departments.<sup>7</sup>

The States that led in the number of county nurses employed for full-time or part-time maternity and infancy work were Alabama, Arkansas, California, Georgia, Maryland, North Carolina, Tennessee, Texas, and Virginia. In some of these States the policy was followed of establishing full-time county health departments, and nurses in these departments whose salaries were paid in part by Federal and State funds and in part by county funds carried on the local maternity and infancy programs. In the others there were few or no full-time county health departments, and nurses whose salaries also were paid jointly from Federal, State, and local funds did maternity and infancy work in the counties under the general supervision of the State department.

### HOME VISITS

An important feature of the work in 39 States and Hawaii was the visits made by the nurses on the State staff and by the county nurses to the homes to instruct the mothers in prenatal, infant, and child care. The home visit is one of the most successful methods of reaching the expectant mother and impressing her with the value of medical supervision during pregnancy. The home visit is also useful to discuss corrections needed for children examined at conferences.

The total number of home visits reported was 674,083. One State in which visits were made did not give a complete report on the number of visits, and six States—Indiana, Kentucky, North Dakota,

<sup>7</sup> The total number of counties having full-time health departments on January 1, 1929, was 467. Public Health Reports, vol. 44, No. 20 (May 17, 1929), p. 1202. U. S. Public Health Service, Washington, 1929.

South Dakota, Vermont, and Washington—made no report of the number of visits. New Jersey reported 65,000 visits made by nurses, the largest number reported by any State. Georgia was next with 60,336, Rhode Island with 59,619, New York with 51,052, and Virginia with 50,858.

Table 3 shows the number of home visits made in the cooperating States and the Territory of Hawaii during the year ended June 30, 1929.

TABLE 3.—*Number of visits made by nurses, number of community and group demonstrations, and number of counties in which maternity and infancy work was done, in the States and the Territory of Hawaii cooperating under the maternity and infancy act, during the year ended June 30, 1929*

States and Territory cooperating	Visits by nurses	Demonstrations		Number of counties—		
		Com- munity	Group	In the State	In which maternity and infancy work has been done—	
					During 1929	Since the beginning of co- operation
Total.....	674,083	163	10,094	2,953	2,170	2,717
Alabama.....	47,651			67	31	33
Arizona.....	11,546	78	88	14	10	14
Arkansas.....	11,799		872	75	75	75
California.....	25,256	2	307	58	57	58
Colorado.....	1,842		250	63	38	61
Delaware.....	9,641			3	3	3
Florida.....	13,876		( <sup>1</sup> )	67	67	67
Georgia.....	60,336		1,151	161	125	161
Hawaii.....	16,337			5	4	4
Idaho.....	128			44	42	44
Indiana.....			141	92	86	92
Iowa.....	280			99	43	99
Kansas.....	<sup>2</sup> 1,125			105	101	105
Kentucky.....				120	50	120
Louisiana.....	914	5	244	64	22	62
Maine.....	14,662		268	16	11	15
Maryland.....	7,289		51	23	23	23
Michigan.....	12,647	11	1,845	83	81	83
Minnesota.....	3,585		18	87	62	87
Mississippi.....	8,291			82	82	82
Missouri.....	7,180		1,025	114	60	114
Montana.....	5,081		75	56	28	56
Nebraska.....	1,041		382	93	71	90
Nevada.....	3,020		19	17	17	17
New Hampshire.....	13,382		168	10	10	10
New Jersey.....	65,000	3	225	21	21	21
New Mexico.....	2,459	8	21	31	20	31
New York.....	51,052	13	( <sup>1</sup> )	62	62	62
North Carolina.....	49,671			100	53	62
North Dakota.....				53	34	47
Ohio.....	6,364		2	88	37	82
Oklahoma.....	2,296	3	74	77	76	77
Oregon.....	5,030		261	36	29	36
Pennsylvania.....	47,223	13		67	67	67
Rhode Island.....	59,619			5	5	5
South Carolina.....	9,114	16	143	46	46	46
South Dakota.....		1		69	65	65
Tennessee.....	17,147		379	95	71	95
Texas.....	10,903	7	1,043	254	70	121
Utah.....	3,672		17	29	28	29
Vermont.....			27	14	12	13
Virginia.....	50,858		15	100	98	98
Washington.....			( <sup>1</sup> )	39	36	36
West Virginia.....	14,538	2	585	55	48	55
Wisconsin.....	734	1	376	71	71	71
Wyoming.....	1,494		22	23	22	23

<sup>1</sup> Not reported.

<sup>2</sup> Incomplete report.

## LOCAL DEMONSTRATIONS OF MATERNITY AND INFANCY PROGRAMS

A total of 163 community demonstrations of maternity and infancy work were reported by 14 States: Arizona, California, Louisiana, Michigan, New Jersey, New Mexico, New York, Oklahoma, Pennsylvania, South Carolina, South Dakota, Texas, West Virginia, and Wisconsin. These varied from a full maternity or infant-welfare program conducted in a county or community during several months or a year to a demonstration of some special phase of the work during a short period to emphasize an important feature of maternal or infant care. During the year under review New York conducted 13 community demonstrations consisting of extensive programs in maternal or infant care and Arizona conducted 78 consisting of some special feature or features.

Demonstrations of special technique in the care of mothers and infants or demonstrations of other relevant matters of especial interest were given before groups of mothers, midwives, girls, nurses, and other special groups. Demonstrations by nutritionists in foods and food values were included in this method of reaching the public with information. Thirty States reported 10,094 demonstrations conducted before groups.

Table 3 shows the number of community and group demonstrations conducted in the cooperating States reporting this phase of work during the year ended June 30, 1929.

## INSPECTION OF MATERNITY AND INFANT HOMES

Child-hygiene bureaus or divisions in the departments of health or public welfare in 12 States reported the inspection of such institutions during the year under review. In these States—California, Idaho, Kansas, Nebraska, New Hampshire, New Jersey, New York, North Dakota, Ohio, South Dakota, Texas, and Utah—a total of 1,196 maternity homes or maternity hospitals were inspected. The number of inspections made was 1,365. California inspected 250 homes (making 291 inspections) and 371 hospitals (making 414 inspections).

The inspection of boarding homes for infants or children was reported by the bureaus or divisions of child hygiene of seven States: Kansas, Nebraska, New Hampshire, New Jersey, New York, North Dakota, and Texas. These States made 1,775 inspections of 1,007 infant homes. Of these inspections 516 were of 454 boarding homes for children in New York State.

## MIDWIVES

The instruction of midwives continued to occupy a large place in the programs of maternal and child welfare of States in which midwives attend a large number of births. During the year under review the instruction of midwives in class groups was reported by 15 States: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Michigan, New Mexico, North Carolina, South Carolina, Tennessee, Texas, and Virginia. The number of groups or classes organized was 1,553; 9,425 midwives were enrolled, and 4,477 completed the course. The number of lessons in the courses in the different States varied from 2 to 10. In a number of States the class work for midwives was followed by the organization of

midwives' clubs. At the regular meetings of such clubs an inspection was made of the midwives and their bags. Supervision and instruction were given to midwives by State staff nurses or county nurses. This plan of continuous supervision has been especially well adapted to the Southern States that have numerous negro midwives. The plan has given the State bureaus or divisions a better knowledge of the individual midwives, and as a result of continuous and persistent effort on the part of State staffs and the county health departments the type of midwives as well as their technique has improved greatly in the past few years.

TABLE 4.—Classes conducted for instruction in maternal, infant, and child hygiene reported by 37 States and the Territory of Hawaii cooperating under the maternity and infancy act during the year ended June 30, 1929

States and Territory cooperating	Classes for women			Classes for girls			Classes for midwives		
	Classes organized	Women enrolled	Women completing course	Classes organized	Girls enrolled	Girls completing course	Classes organized	Midwives enrolled	Midwives completing course
Total .....	1, 101	18, 211	10, 851	2, 185	36, 290	23, 293	1, 553	9, 425	4, 477
Alabama .....				51	1, 217	314	14	719	<sup>1</sup> 571
Arizona .....	8	111	105	2	41	35			
Arkansas .....	143	2, 039		88	1, 760		40	1, 073	
California .....	56	603	603	<sup>2</sup> 5	<sup>2</sup> 110	<sup>2</sup> 110			
Colorado .....	5	53	53	48	182	182			
Delaware .....				3	84	78			
Florida .....				( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )	<sup>3</sup> 18	95	95
Georgia .....	42	650	592	403	4, 554	2, 691	807	2, 939	117
Hawaii .....				2	48	20	455	2, 374	<sup>2</sup> 2, 730
Idaho .....	18	188							
Indiana .....	58	2, 398	2, 398						
Kentucky .....							10	70	70
Louisiana .....	1	25	<sup>8</sup> 78	24	678		26	264	146
Maine .....	7	120	74	35	544	406			
Maryland .....	32	433	360	17	380	380	18	206	186
Michigan .....	<sup>7</sup> 162	2, 539	<sup>5</sup> 2, 750	192	3, 974	3, 924	( <sup>7</sup> )	( <sup>7</sup> )	( <sup>7</sup> )
Minnesota .....	25	418	149						
Mississippi .....				126	<sup>8</sup> 3, 900	3, 838	( <sup>4</sup> )	( <sup>4</sup> )	( <sup>4</sup> )
Missouri .....	109	2, 248	1, 680	10	166	102			
Montana .....	2	( <sup>4</sup> )	( <sup>4</sup> )	5	( <sup>4</sup> )	( <sup>4</sup> )			
Nebraska .....	15	572	40	234	4, 079	3, 780			
Nevada .....	21	504	329	27	( <sup>4</sup> )	( <sup>4</sup> )			
New Hampshire .....	6	179	179	12	345	345			
New Jersey .....				173	2, 843	2, 800			
New Mexico .....				2	58	50	1	8	
New York .....	78	( <sup>4</sup> )	( <sup>9</sup> )						
North Carolina .....							7	212	158
Oklahoma .....				7	102	102			
Oregon .....	7	88	80	20	304	257			
South Carolina .....	42	714	556	28	835	734	25	361	226
South Dakota .....	9	106	106						
Tennessee .....	5	33		26	345	315	3	116	<sup>6</sup> 142
Texas .....	64	1, 263	145	98	2, 285	1, 072	23	496	
Utah .....	3	96	85	1	18	18			
Vermont .....	1	9	9	27	1, 145	1, 145			
Virginia .....	94	1, 734	480	53	1, 029	595	106	492	36
West Virginia .....	88	1, 088	( <sup>4</sup> )	466	5, 264	( <sup>4</sup> )			
Wisconsin .....				( <sup>10</sup> )					

<sup>1</sup> 571 permits issued; lessons were continuous.

<sup>2</sup> 2 other classes were organized, but enrollment and number of lessons were not reported.

<sup>3</sup> Conducted by a member of the Children's Bureau staff.

<sup>4</sup> Not reported.

<sup>5</sup> Includes some carried over from previous year.

<sup>6</sup> Includes 53 carried over from previous years.

<sup>7</sup> 95 midwives enrolled in classes for women completed the course.

<sup>8</sup> Includes 255 boys.

<sup>9</sup> 1,171 certificates given.

<sup>10</sup> Infant-hygiene classes are conducted in public schools.

States with large numbers of white midwives have regulated, instructed, and supervised them. The midwives have been organized into county, district, or State groups and have been given special instruction. Unquestionably the close supervision and the follow-up of midwives' cases in the States that have employed supervisors of midwives have contributed in a large measure to a lowered mortality of mothers attended by midwives.

Table 4 shows the number of classes organized for midwives, the number of midwives enrolled, and the number completing the course in the States reporting these items for the year ended June 30, 1929.

Special opportunities for advanced courses for midwives with bedside training in hospitals is a recent development of maternity and infancy work. A graduate course for licensed midwives was offered by the Jersey City Hospital in 1928. Fourteen midwives in that year took the course offered and 25 midwives completed the course and received certificates in 1929.

#### CLASSES FOR WOMEN IN INFANT AND PRENATAL CARE

The State bureaus or divisions of child hygiene conducted 1,101 classes in prenatal and infant care for women, or especially for mothers, in 27 States: Arkansas, Arizona, California, Colorado, Georgia, Idaho, Indiana, Louisiana, Maine, Maryland, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Hampshire, New York, Oregon, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, and West Virginia; 18,211 women were enrolled and 10,851 completed the course. The number of lessons in the course in the different States, usually about 8, varied from 3 to 30. Michigan led in the number of classes organized (162), Arkansas was next (143), and Missouri was third (109). Michigan reported the highest enrollment (2,539), Indiana was second (2,398), and Missouri was third (2,248).

Table 4 shows the number of classes organized for women, the number of women enrolled, and the number completing the course in the States in which such classes were conducted during the year ended June 30, 1929.

#### CLASSES FOR GIRLS IN INFANT AND CHILD CARE

Instruction in infant care and child care was given by members of the State staffs to 2,185 groups of girls from 10 to 15 years of age in the Territory of Hawaii and 28 States: Alabama, Arizona, Arkansas, California, Colorado, Delaware, Georgia, Louisiana, Maine, Maryland, Michigan, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, Oklahoma, Oregon, South Carolina, Tennessee, Texas, Utah, Vermont, Virginia, and West Virginia. Florida gave instruction to girls but did not report the number of classes; the number of girls reported enrolled was 36,290 and 23,293 completed the course. West Virginia reported the largest number of classes organized (466), Georgia was second (403), and Nebraska was third (234 class groups). The highest enrollment for the year was in West Virginia (5,264), Georgia was second (4,554), and Nebraska was third (4,079). The number of lessons in the course, usually 10, varied from 5 to 30. As a result of maternity and infancy work, courses in infant and child care and hy-

giene were taught in many schools in Wisconsin, and a number of lessons in the subject were given in schools by the organizer of infant-hygiene classes, a member of the staff of the State bureau of child welfare and public-health nursing.

Table 4 shows the number of classes organized for girls, the number of girls enrolled, and the number completing the course in the States and Hawaii during the year under review.

#### **INSTRUCTION OF SPECIAL GROUPS IN MATERNAL AND INFANT CARE**

Graduate courses in pediatrics were conducted for physicians with the assistance of the State bureaus or divisions of child hygiene or child welfare in Colorado, Missouri, and Tennessee. The Georgia Division of Child Hygiene cooperated with the United States Children's Bureau in providing a course in obstetrics for physicians in four congressional districts on request of county medical societies. Talks and lectures on special care of mothers or infants and special phases of administration or technique were given to physicians and nurses on request. Classes for teachers or for prospective teachers were conducted by the child-hygiene bureaus or divisions in Kansas, Minnesota, New Jersey, and Wisconsin. Classes or series of lectures for nurses were arranged in Minnesota, New Hampshire, and Oklahoma.

#### **TRAINING FIELD NURSES IN MATERNITY AND INFANCY WORK**

During the year under review 30 States reported using some method for further training of field and county nurses in maternity and infancy work after their entrance on duty. Only five States were able to require that nurses be thoroughly trained in public-health work before they were employed. Supervisory or advisory visits by a nurse supervisor or director were most frequently reported as the means used to improve the methods of organizing maternity and infancy nursing services. Loan libraries were part of the plans in a few States. State and regional conferences and institutes for nurses were held in a number of States. Several bureaus or divisions of child hygiene placed new nurses in the field under more experienced nurses for a time before assigning them to permanent stations. Four States—Alabama, Delaware, Missouri, and New York—arranged for the further training of newly employed nurses at training centers or in "training counties." In general, the last year of the cooperation of the States under the maternity and infancy act was marked by a greater resourcefulness in finding methods to improve the type of services rendered by maternity and infancy nurses within the States.

#### **INSTRUCTION IN PRENATAL CARE**

The development of good programs in maternal welfare has been slow, but more progress was made in 1929 than in previous years. Difficulties were met and were overcome in the selection of methods of informing the public, and particularly the expectant mother, of the advisability of medical supervision early in pregnancy and regularly during this period, and of emphasizing the benefit of such supervision to the unborn child and during the first month of life as well as to the life of the mother. No one method of disseminating this information was utilized in all the States. Activities found widely useful in the States were prenatal conferences, prenatal centers,

classes for expectant mothers and other women, and classes for midwives in which they were instructed to have their prospective cases receive prenatal care. Visits by nurses to expectant mothers and county-wide demonstrations in prenatal and maternal care—as, for example, in New York and Michigan—also were successful methods of imparting instruction on this subject.

The distribution of prenatal letters was a method of reaching many pregnant women. During the year under review 24 States—Arizona, California, Colorado, Delaware, Idaho, Kansas, Kentucky, Louisiana, Maine, Michigan, Minnesota, Missouri, Montana, Nebraska, New Hampshire, North Carolina, Oklahoma, Oregon, South Dakota, Tennessee, Utah, Washington, West Virginia, and Wisconsin—enrolled 39,246 women to receive prenatal letters. Twenty-five States distributed 50,140 sets of these letters; a set usually consisted of nine letters, one sent for each month of pregnancy. North Carolina led in the number of women enrolled (9,671) and Oklahoma was second with an enrollment of 6,697.

Table 5 shows the number of new names enrolled for prenatal letters in the States reporting this activity and the number of sets of letters distributed in the year ended June 30, 1929.

Correspondence courses in prenatal care were conducted in Minnesota, Virginia, Washington, and West Virginia. Literature on prenatal care prepared by the United States Children's Bureau and by a number of States also was distributed by the cooperating States.

TABLE 5.—*Educational work done through talks and lectures, prenatal letters, and distribution of literature in the States and Territory of Hawaii cooperating under the maternity and infancy act during the year ended June 30, 1929*

States and Territory cooperating	Talks and lectures					Prenatal letters		Pieces of literature distributed
	Total	Number given to—				New names en-rolled	Sets distributed	
		Physi- cians	Nurses	Lay groups	Radio audi- ences			
Total.....	29, 748	363	521	11, 992	116	39, 246	50, 140	6, 063, 120
Alabama.....	1, 662	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	-----	-----	( <sup>1</sup> )	( <sup>1</sup> )
Arizona.....	71	1	5	65	-----	695	698	71, 598
Arkansas.....	3, 105	50	60	2, 995	-----	-----	-----	109, 309
California.....	208	34	37	137	-----	1, 511	3, 536	18, 666
Colorado.....	195	88	-----	105	2	362	362	14, 600
Delaware.....	118	4	8	106	-----	788	732	52, 226
Florida.....	343	4	30	305	4	-----	-----	25, 824
Georgia.....	653	17	16	606	14	-----	-----	42, 654
Hawaii.....	9	2	7	-----	-----	-----	-----	4, 003
Idaho.....	10	-----	2	8	-----	355	355	23, 968
Indiana.....	374	6	1	345	22	-----	-----	94, 577
Iowa.....	155	5	7	137	6	-----	-----	108, 500
Kansas.....	87	3	2	82	-----	740	( <sup>2</sup> )	170, 016
Kentucky.....	809	6	-----	800	3	619	1, 913	365, 500
Louisiana.....	159	-----	1	158	-----	322	( <sup>3</sup> )	33, 766
Maine.....	182	-----	1	173	3	1, 607	1, 643	71, 602
Maryland.....	81	1	3	66	11	-----	-----	125, 000
Michigan.....	314	3	13	298	-----	3, 229	3, 943	171, 213
Minnesota.....	93	13	32	47	1	1, 127	3, 154	251, 202
Mississippi.....	15, 000	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	-----	-----	50, 000
Missouri.....	431	6	14	409	2	830	904	290, 887
Montana.....	60	16	-----	44	-----	579	579	98, 610
Nebraska.....	73	-----	16	53	4	911	911	283, 771
Nevada.....	-----	-----	-----	-----	-----	-----	250	1, 500
New Hampshire.....	235	-----	10	224	1	1, 284	1, 284	193, 648

<sup>1</sup> Not reported.

<sup>2</sup> 5,149 individual letters distributed.

<sup>3</sup> 322 letters distributed.

TABLE 5.—*Educational work done through talks and lectures, prenatal letters, and distribution of literature in the States and Territory of Hawaii cooperating under the maternity and infancy act during the year ended June 30, 1929—Continued*

States and Territory cooperating	Talks and lectures					Prenatal letters		Pieces of literature distributed
	Total	Number given to—				New names en-rolled	Sets distributed	
		Physicians	Nurses	Lay groups	Radio audiences			
New Jersey .....	38	-----	16	20	2	-----	350	100,000
New Mexico .....	<sup>4</sup> 51	-----	-----	50	-----	-----	-----	20,491
New York .....	299	5	64	228	2	-----	-----	760,114
North Carolina .....	-----	-----	-----	-----	-----	9,671	9,671	315,856
North Dakota .....	23	2	5	16	-----	-----	-----	27,828
Ohio .....	<sup>1</sup> 1,052	6	9	1,029	8	-----	-----	242,000
Oklahoma .....	<sup>5</sup> 323	1	8	295	-----	6,697	10,035	352,503
Oregon .....	<sup>6</sup> 248	( <sup>1</sup> )	22	200	26	1,200	1,197	50,000
Pennsylvania .....	<sup>7</sup> 74	( <sup>7</sup> )	( <sup>7</sup> )	( <sup>7</sup> )	( <sup>7</sup> )	-----	-----	433,575
Rhode Island .....	28	-----	-----	28	-----	-----	-----	42,776
South Carolina .....	293	12	36	245	-----	-----	42	40,436
South Dakota .....	26	-----	-----	26	-----	675	785	36,741
Tennessee .....	<sup>1</sup> 655	33	-----	1,622	-----	809	809	53,176
Texas .....	<sup>6</sup> 137	6	4	<sup>6</sup> 127	-----	-----	-----	40,554
Utah .....	<sup>6</sup> 137	6	1	129	-----	529	515	28,738
Vermont .....	39	10	1	28	-----	-----	-----	28,059
Virginia .....	187	1	-----	186	-----	-----	-----	307,778
Washington .....	126	8	28	86	4	780	<sup>9</sup> 2,203	17,942
West Virginia .....	448	3	6	439	-----	1,299	1,233	94,486
Wisconsin .....	137	10	56	70	1	2,627	2,946	386,427
Wyoming .....	-----	-----	-----	-----	-----	-----	-----	11,000

<sup>1</sup> Not reported.<sup>4</sup> Includes 1 to midwives.<sup>5</sup> Includes 19 to dentists.<sup>6</sup> Incomplete report.<sup>7</sup> To lay groups chiefly.<sup>8</sup> Includes 1 to dentists.<sup>9</sup> Includes 2,000 sets mailed to physicians and public-health nurses in the State.

## TALKS AND LECTURES

Phases of maternal and infant care were presented in 42 States and the Territory of Hawaii through a total of 29,748 talks or lectures. Mississippi reported 15,000, the largest number of talks reported as given in any one State. Arkansas was second, reporting 3,105. Radio talks were given 116 times, Oregon leading with 26. A total of 362 lectures or talks were given to physicians, 521 to nurses, and 11,992 to lay groups. A few talks or lectures were addressed to groups of dentists and a few to groups of midwives. Only 3 of the States cooperating—Nevada, North Carolina, and Wyoming—did not report formal talks or lectures as a means of disseminating information.

Table 5 shows the total number of talks and lectures given in the 42 States and Hawaii and the number addressed to physicians, nurses, lay groups, and radio audiences during the year ended June 30, 1929.

## DISTRIBUTION OF LITERATURE

Forty-four States and the Territory of Hawaii reported distributing literature on the care of mothers and babies and preschool children. This included both State and Federal publications. The total number of publications distributed by the States was in excess of 6,000,000 pieces. Eighteen States reported distributing 100,000 or more pieces of literature. New York reported more than 760,000 pieces distributed and Pennsylvania more than 430,000.



Hawaii and 21 States—Arizona, Delaware, Kansas, Maryland, Michigan, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Mexico, New York, North Carolina, North Dakota, Pennsylvania, South Carolina, South Dakota, Utah, Virginia, Wisconsin, and Wyoming—reported sending literature on the care of the baby to the parents of all babies whose births were registered in State bureaus or divisions of vital statistics. The Colorado Child-Welfare Bureau sent literature to the parents of babies whose births were listed in the newspapers. In Iowa the division of maternity and child hygiene supplied literature to the State board of health, to be sent to the parents of infants whose births were registered with that board. New Jersey and Rhode Island distributed literature to the parents of newborn babies at the time of the visit of the public-health nurses. Thus 25 States and Hawaii sent information on the care of the baby to approximately all the parents of babies born in those States during the year under review. Several other States sent letters to parents of babies whose births were registered, offering to send such literature on request.

The estimated number of live births in the entire United States during the year under review was 2,365,624. The number of births registered in Hawaii and those States that attempted to reach the parents of newborn babies with information on the care of babies was approximately 1,113,000. A conservative estimate of babies reached through literature on their care sent to their parents during the year leads to the conclusion that half of the babies born in the United States during that year had the benefit of such information, as a result of State and Territorial cooperation with the Federal Government.

Table 5 shows the number of pieces of literature distributed by the cooperating States and the Territory of Hawaii during the year ended June 30, 1929.

#### EXTENSION OF THE UNITED STATES BIRTH AND DEATH REGISTRATION AREAS

During the fiscal year ended June 30, 1929, the United States Bureau of the Census announced the admission of three States to the United States birth-registration area—Colorado, South Carolina, and Nevada—and of one State—Nevada—to the death-registration area. The admission of these States brought the total number of States in each area to 45. The States not in either area at the close of the year under review were New Mexico,<sup>8</sup> South Dakota, and Texas. The prospects are good for an early completion of the birth and death registration areas by the inclusion of these States and the Territory of Hawaii. The Territory of Hawaii, which is in the death-registration area but not yet in the birth-registration area, has made efforts to improve its registration of births. During the year under review the child-hygiene agencies in New Mexico and Texas conducted campaigns to improve the registration of both births and deaths. Legislation in South Dakota providing smaller registration districts would assist that State in entering the area.

<sup>8</sup> New Mexico was admitted to the United States birth and death registration areas in November, 1929.

## SURVEYS AND CAMPAIGNS

A total of 34 surveys made during the year ended June 30, 1929, were reported by 20 States: Alabama, Arkansas, California, Colorado, Delaware, Kansas, Louisiana, Maryland, Michigan, Minnesota, Mississippi, New Hampshire, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Tennessee, West Virginia, and Wisconsin. These surveys included the study of maternal mortality being made in a number of States in cooperation with the United States Children's Bureau and also surveys of midwives, of conditions affecting preschool children, of completeness of birth registration, of maternity homes and hospitals, of public-health nursing, of goiter in children, of the extent of breast feeding, and of conditions affecting Indian women and babies on a reservation (made by a State division of child hygiene in cooperation with the United States Office of Indian Affairs).

A total of 191 campaigns were conducted by 32 States: Arkansas, California, Colorado, Delaware, Georgia, Idaho, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Michigan, Minnesota, Missouri, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, West Virginia, and Wyoming. Twelve States conducted campaigns for the examination of preschool children and the correction of their defects before they should enter school in the fall. This type of campaign included in some States immunization against diphtheria and vaccination against smallpox as qualifications to enter school; 15 States reported independent campaigns for immunization against diphtheria, and 1 State reported a campaign for vaccination against smallpox. Eleven States reported campaigns for the observance of May Day as Child Health Day. Five States reported campaigns for the improvement of birth registration in order to enter the United States registration area, or to improve registration in certain counties. Two States conducted campaigns for promotion of breast feeding. Campaigns for the securing of dental corrections, early recognition of tuberculosis in children, and improvement of milk and water supplies and of sanitation affecting the health of children each were reported by one State. The types of campaigns indicate a growing general interest in the welfare of infants and of preschool children and an effort to institute or increase various activities to improve their condition and their chances for life and health. Although a number and variety of campaigns were reported, there was in addition a considerable amount of informal campaign work, as, for example, the instruction of expectant mothers and other mothers in the importance of breast feeding at health conferences and through the literature distributed.

## MATERNAL-MORTALITY STUDY

During the year under review a state-wide study of all the deaths of women ascribed to puerperal causes that had occurred in the calendar years 1927 and 1928 was made in 15 States: Alabama, California, Kentucky, Maryland, Michigan, Minnesota, Nebraska, New Hampshire, North Dakota, Oklahoma, Oregon, Rhode Island,

Virginia, Washington, and Wisconsin. In each State the study was undertaken at the request of the State board of health and State medical society and was made in cooperation with the United States Children's Bureau. (Two States—California and Oklahoma—confined the study to the maternal deaths that occurred during the calendar year 1928 only.) In California, Michigan, Minnesota, North Dakota, Oklahoma, and Wisconsin physicians from the staff of the State bureau or division of child hygiene made the study. The United States Children's Bureau lent personnel to 9 States—Alabama, Kentucky, Maryland, Nebraska, New Hampshire, Oregon, Rhode Island, Virginia, and Washington—to assist in securing data on the schedules. The tabulations will be made by the Children's Bureau. (See pp. 117, 123.)

### EXPANSION OF ACTIVITIES

The 45 cooperating States and the Territory of Hawaii contain 2,953 counties or parishes. During the period of cooperation under the maternity and infancy act maternity and infancy work has been done in 2,717 of these counties. This total, as given in 1929, shows an increase of 46 counties over the total counties reported reached in 1928. The number of counties in which maternity and infancy work was done during the year under review was 2,170. Thirteen States—Arkansas, Delaware, Florida, Maryland, Mississippi, Nevada, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, South Carolina, and Wisconsin—reached every county within their borders during the year under review. During the period of cooperation under the maternity and infancy act some form of maternity and infancy work was done in every county in 32 States: Arizona, Arkansas, California, Delaware, Florida, Georgia, Idaho, Indiana, Iowa, Kansas, Kentucky, Maryland, Michigan, Minnesota, Mississippi, Missouri, Montana, Nevada, New Hampshire, New Jersey, New Mexico, New York, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, Tennessee, Utah, West Virginia, Wisconsin, and Wyoming.

No work was undertaken in 235 counties in the cooperating States. In 2 States having 34 and 38 counties not reached, the work was done mainly through the county health departments, as it did not seem feasible to conduct state-wide programs in these States by the method followed where the health program is centralized in a State department. Many of the 164 counties not reached by maternity and infancy work in the remaining 9 States are sparsely settled, mountainous, or unorganized, a few being Indian reservations in which the United States Office of Indian Affairs has charge of the health work. No maternity and infancy work was done in one county in the Territory of Hawaii, which is a leper settlement, isolated from outside contacts.

The geographical extent of the maternity and infancy work has increased each year, and each year intensive work looking toward permanent services has been carried out more successfully.

The number of counties in the cooperating States and Hawaii in which work has been done under the maternity and infancy act during the year under review and since the beginning of cooperation with the Federal Government is shown in Table 3 (p. 14).

Thirty-eight States reported the number of expectant mothers reached by some form of maternity and infancy work during the year, the total number being 197,897. Forty-three States and Hawaii reported the number of infants and preschool children reached—1,289,090. In a number of States the reports were incomplete, in many instances not including the mothers and children reached through distribution of literature.

Efforts were made by the States during the last year of operation of the maternity and infancy act to secure State appropriations adequate to continue the maternity and infancy work after June 30, 1929, on the scale made possible by the provision of both Federal and State funds. In addition, even greater efforts than in former years were made to place county and community work to which assistance had been given on a permanent basis by having local agencies assume the responsibility for their support. Nineteen States—California, Colorado, Florida, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, New Mexico, New York, Ohio, Oregon, South Carolina, South Dakota, Texas, Utah, Virginia, Washington, and Wisconsin—reported that since the beginning of cooperation under the act the responsibility for the work initiated or assisted by the State bureaus or divisions of child hygiene had been assumed by 161 counties and 13 communities. In 1 State—Maryland—7 counties had assumed all the responsibility except for the service of physicians from the State staff. In addition, 7 States—Georgia, Kansas, Mississippi, New Mexico, New York, Ohio, and Pennsylvania—reported that 36 counties and 54 communities were to assume the responsibility after June 30, 1929.

#### ORGANIZATIONS COOPERATING IN THE MATERNITY AND INFANCY WORK

State and local public and private organizations continued during the year under review to support the State maternity and infancy work and to give active cooperation. The cooperation has included formal indorsement of activities and assistance in organizing local work, in carrying on campaigns, surveys, and demonstrations, and in conducting health conferences. Financial assistance has been given in conducting local work in some States and in continuing it after maternity and infancy funds were withdrawn.

Every State cooperating under the maternity and infancy act reported cooperation received from one or more state-wide organizations. The cooperating organizations included other State departments and bureaus, professional groups, women's organizations, and fraternal and service organizations. In addition, cooperation was given by many local organizations and by individuals.

Forty-two States reported assistance from the State parent-teacher association. Thirty reported cooperation from the State federation of women's clubs. The American Red Cross and the State league of women voters each was reported as giving special assistance in 18 States. The State medical association and the extension division of the State university or State college of agriculture each was reported as assisting in 14 States. The State department of education or of public instruction and the State tuberculosis association each was reported as assisting in 13 States. Ten States reported cooperation

from the American Legion auxiliary. The State dental association and the American Legion each was reported as assisting in 9 States. Six States reported cooperation from the State public-health association and 1 from the State public-health and tuberculosis association. The auxiliary of the State medical association and the Woman's Christian Temperance Union each was reported as cooperating in 5 States, the legislative council of women was reported as cooperating in 4 States, the State farm bureau in 3 States, and the American Association of University Women in 2 States.

Other organizations reported cooperating in one or two States included the State board or department of welfare, the State board of control, the State board of charities and corrections, the State child-welfare department or bureau, the State commission for the blind, the State psychopathic hospital, the committee on maternal welfare of the State medical association, district and county medical societies, the State society for crippled children, the State health council, the State child-welfare association, the State mental-hygiene association, the State conference of social work, the State nurses' association, the State organization for public-health nursing, the visiting-nurse association, the State association of university women, the State grange, the State chamber of commerce, the Daughters of the American Revolution, the Catholic Daughters of America, the Young Men's Christian Association, the Young Women's Christian Association, the Girl Scouts, the Camp Fire Girls, the Cooperative Education Association, the Child Study Association, the State Charities Aid Association, the Home Bureau, the State Development Board, the Council of Farm Women, the State federation of colored women's clubs, home-makers' clubs, farm women's clubs, schools, colleges, church organizations, men's service clubs, business clubs and fraternal organizations, community clubs, civic clubs, home-demonstration agents, and the press.

## SEVEN YEARS' WORK OF THE COOPERATING STATES UNDER THE MATERNITY AND INFANCY ACT

### ACTIVITIES UNDERTAKEN

Though the details of the work under the maternity and infancy act have differed in the different States, the aim in all has been fundamentally educational; and, because the large cities already have hospitals, physicians, nurses, and health departments, the work has been primarily for mothers and babies living in the smaller cities and in rural areas. All the States have sought to teach the public how better care of mothers and babies will save lives and improve health and to stimulate such local and individual interest in the program that the work, once initiated, will be carried on by the local community itself.

The types of activities that the States have carried on were, in general, the following:

1. Instruction of the individual as to the care of the mother and child through—
  - (a) Health conferences conducted by physicians and nurses directly under State auspices.
  - (b) Permanent health centers offering the same kind of instruction but conducted under local auspices and financed at least in part by local funds.
  - (c) Visits to mothers in their homes by public-health nurses.
  - (d) Demonstrations in the home in infant and maternal care.
2. Instruction of groups through—
  - (a) Classes—
    - (1) In infant care for adolescent girls.
    - (2) In infant care and prenatal care for mothers.
    - (3) In infant care and prenatal care for teachers, to prepare them to include maternity and infancy instruction in their class work.
    - (4) For midwives.
  - (b) Graduate courses for nurses in maternity and infancy work through State or regional conferences or institutes.
  - (c) Graduate courses in pediatrics and obstetrics for physicians (usually conducted in conjunction with State or county medical societies).
  - (d) Lectures, motion pictures, slides, charts, and exhibits.
3. Instruction through distribution of literature prepared by the State or Federal Government on maternal and infant care and hygiene, child care and management, and other subjects.

It is not possible to give an exact numerical summary of the States' activities of these various types for the seven years in which the act was in operation. Only approximate results can be shown by figures reported by the States, as the figures available fall short of actual

accomplishments. A number of factors influencing the development and growth of the work in the States have contributed to the uneven character of reports in the earlier years as compared with those of later years. It was not until well into the year 1923 that the States were in a position to accept the full benefits of the maternity and infancy act through their legislatures. Four States created child-hygiene divisions or bureaus in 1921, the year of the passage of the act, and 10 States established such agencies after its passage. There was also an increase from year to year in the number of States cooperating under its provisions. It was not until 1927 that the last two States to cooperate accepted the benefits of the act. In each State some time necessarily was consumed in organizing the supervising bureau or division and in getting the field work under way. To the director the most important thing was to get the work started; a good system of record keeping was secondary and came later. Each State initiated its own program of work, and it was not until the first reports of the work were published and the first conference of directors of State bureaus was held in 1923 that more homogeneous State programs were inaugurated. It was not until the close of the fiscal year 1924 that comparable figures from the States were available to any extent, and data on a few points were not obtained until 1925 and 1926.

The total number of health conferences at which expectant mothers and children were examined by physicians, as reported by the cooperating States during the 7-year period, was 144,777. Additional conferences conducted by nurses and dentists in which general instruction was given on maternal and child care brought the total number of conferences conducted to 183,252. A total of 2,978 permanent centers consisting of child-health, prenatal, and combined prenatal and child-health centers were established. The number of classes organized for instruction, including classes for girls in infant care, classes for mothers in infant and maternal care, and classes for midwives, was 19,723 during the last five years of operation of the act. Visits to homes in the interest of mothers and babies made by public-health nurses during the last six years of the act reached a total of 3,131,996. Reports covering the last five years of the act showed 22,030,489 pieces of literature distributed. During the last four years of the act 176,733 sets of prenatal letters were distributed. The State reports for the last four years showed that more than 4,000,000 infants and preschool children and approximately 700,000 expectant mothers were reached by some form of the maternity and infancy work.

It should be noted that a decrease in numbers in an activity during a given year means a change in work rather than a diminution of the work. For example, when a State conducts itinerant demonstration conferences over the entire State it reports a much larger number of conferences held and numbers of mothers and children reached than when, after this general educational work is done, it assists in the development of permanent locally supported centers. When the responsibility for maintaining the centers has been assumed by the local community, the work is no longer reported as a State activity. On the other hand, an actual expansion of the work is indicated in some activities, as the increase in the distribution of prenatal letters in 1929 and the larger numbers of children and expectant mothers reached by the maternity and infancy activities in that year.

Table 6 summarizes the activities under the maternity and infancy act during the period 1924 to 1929, inclusive, as reported by the cooperating States and the Territory of Hawaii.

TABLE 6.—*Summary of activities under the maternity and infancy act during the last six years of its operation, as reported by the cooperating States and Territory of Hawaii, 1924-1929*

Year	Conferences conducted by physicians			Conferences conducted by nurses	Dental conferences	Permanent centers established		
	Combined pre-natal and child health	Child health	Pre-natal			Combined pre-natal and child health	Child health	Pre-natal
Total.....	17, 292	107, 345	20, 140	34, 384	4, 091	373	2, 294	311
1924.....	(1)	15, 547	6, 088	(1)	(1)	(1)	1, 084	188
1925.....	(1)	18, 154	3, 781	(1)	330	(1)	506	65
1926.....	1, 945	15, 524	2, 685	6, 407	652	135	140	8
1927.....	1, 808	21, 347	3, 231	6, 273	1, 124	70	235	14
1928.....	7, 341	19, 840	2, 002	11, 580	851	103	202	17
1929.....	6, 198	16, 933	2, 352	10, 124	1, 134	65	127	19

Year	Classes conducted			Home visits made	Sets of pre-natal letters distributed	Pieces of literature distributed
	For girls	For women	For mid-wives			
Total.....	7, 397	6, 578	5, 748	3, 131, 996	176, 733	22, 030, 489
1924.....	(1)	(1)	(1)	149, 000	(1)	(1)
1925.....	1, 362	1, 403	412	299, 100		2, 195, 000
1926.....	1, 365	1, 560	1, 446	587, 673	44, 655	3, 192, 919
1927.....	1, 199	1, 196	684	721, 159	46, 217	4, 403, 218
1928.....	1, 286	1, 318	1, 653	700, 981	35, 721	6, 176, 232
1929.....	2, 185	1, 101	1, 553	674, 083	50, 140	6, 063, 120

<sup>1</sup> Not reported.

Public knowledge of the health problems of the infant and the child has increased, and those in immediate charge of children and their mothers are better informed about infant and maternal hygiene. The importance of adequate prenatal care is being gradually learned. The advantages of breast feeding have been stressed so frequently by infant-welfare workers that the slogan printed on the stationery of the bureau of child health of Virginia, "The best-fed baby is the breast-fed baby," has become an accepted standard for the State staffs and infant-welfare workers in general. Simpler and more scientific formulas for feeding the bottle-fed baby have contributed to his health and chance of living. A greater demand has developed for the supervision of infants by competent pediatricians and specialists in infant feeding.

Standards of prenatal care have been formulated with great care by a committee of leading obstetricians from various parts of the country, organized for that purpose at the request of the United States Children's Bureau in 1924.<sup>9</sup> These standards have reached other

<sup>9</sup> Standards of Prenatal Care; an outline for the use of physicians. U. S. Children's Bureau Publication No. 153. Washington, 1925.



obstetricians, have been incorporated in obstetrical courses in medical colleges, and are part of the general knowledge of maternal-welfare workers. Their effect seems to be reflected in the lower mortality rate from puerperal eclampsia and convulsions, although the maternal mortality rates from certain other puerperal conditions not so easily influenced by prenatal care have not declined. Expectant mothers demand and are receiving a higher type of prenatal care.

State programs for the prevention of diseases in children through vaccination and immunization against diseases for which preventive measures have been accepted and proved effective have been extended through the assistance of the maternity and infancy staffs. A lower incidence of such diseases has been shown in areas where intensive preventive work has been done.

The menace of the untrained, ignorant, and unclean midwife has been greatly lessened during the years between 1921 and 1929 through progress in their registration, regulation, supervision, and instruction.

Many States have used maternity and infancy funds to assist in the manufacture and distribution of ampules of nitrate of silver for use in the eyes of the newborn infant (to prevent ophthalmia neonatorum). These States reported in the last years of operation of the act an increase in the number of requests for the ampules from physicians and midwives—especially the latter. In several States no case of ophthalmia neonatorum was reported during the past year. That fewer babies are blind from this cause seemed to be the conclusion of other States in their reports submitted at the expiration of the maternity and infancy act.

The States and the United States Children's Bureau have made studies and surveys of factors contributing to the morbidity and mortality of mothers and babies. The necessity of obtaining fuller and more accurate figures and of collecting more uniform data showed the importance of completing the birth and death registration areas in the United States. In 1921 the District of Columbia and 27 States were in the United States birth-registration area. By the close of the fiscal year 1929, 45 States and the District of Columbia were in the birth-registration area. In 1921 the United States death-registration area contained 34 States, the District of Columbia, and the Territory of Hawaii. In 1929 the death-registration area included 45 States, the District of Columbia, and the Territory of Hawaii. Maternity and infancy workers have given considerable assistance in State campaigns for improved registration of births and deaths.

Greater attention to the health of the preschool child marked the closing years of the maternity and infancy act. Prevention of communicable diseases for which means of prevention are known, periodic examinations of preschool children, the "summer round-up" of preschool children who will enter school in the fall, and the correction during the summer of defects found in these children in health conferences in the spring or early summer have been developed in large measure since 1921 and have grown to larger proportions in 1929, with resulting better health for children at the beginning of their school life.

The increase in the trained personnel employed in the promotion of maternal and infant health in 1929 as compared with 1921 and the improvement in standards and methods of work also reflect the progress made during the operation of the maternity and infancy act.

## DEVELOPMENT OF ORGANIZED STATE AGENCIES FOR PROMOTING THE WELFARE OF MOTHERS AND CHILDREN

### ORGANIZED BUREAUS IN STATE DEPARTMENTS OF HEALTH

A number of States anticipated the passage of the maternity and infancy act while it was pending in Congress and created maternity and child-hygiene bureaus or divisions to administer the funds under the act if they should become available. Thirty-three such State agencies were in existence at the beginning of 1921. During 1921 and 1922, 14 more were created; and in 1925, after extension of the benefits of the act to Hawaii, that Territory established a division of maternity and infancy.

By June 30, 1929, maternity and child-hygiene bureaus or divisions had been created and were functioning in the Territory of Hawaii and in all the States except Vermont, which did not establish a separate division or bureau to administer the Federal funds but has carried on the work under the immediate direction of the State health officer. Not only were such new agencies created, but those already existing were able to expand through the granting of Federal funds to the States that accepted the provisions of the act. The States that did not accept the Federal funds secured larger appropriations for maternal and child hygiene from their legislatures and were stimulated to greater activities.

### PERMANENT LOCAL AGENCIES FOR EDUCATING PARENTS IN CHILD AND MATERNAL HEALTH

The directors of State divisions and bureaus of maternity and child hygiene had as an objective the development of permanent local interest in the care of mothers and children and the assumption of local responsibility for such care.

Even in the first years of operation of the act many directors regarded the itinerant health conferences that they conducted for the local communities as demonstrations which were to pave the way for the establishment of similar facilities for child care on a permanent basis and with local support. This policy resulted in the establishment of 2,294 permanent child-health centers from 1924 to 1929, inclusive, also 311 permanent prenatal centers, and 373 permanent combined prenatal and child-health centers—some supported from local funds, others so supported in part.

### THE MATERNITY AND INFANCY PROGRAM IN THE DEVELOPMENT OF COUNTY AND OTHER LOCAL HEALTH WORK

Nurses paid in full or in part from maternity and infancy funds have been detailed to counties, communities, or cities, sometimes to work with an established county health unit or other official health agency, sometimes to conduct nursing demonstrations for the purpose of developing public interest in a permanent local nursing or health service. Not infrequently a nurse working alone in a county afforded a starting point for the development of a full-time county health department.

The establishment and extension of local health work were promoted by the use of maternity and infancy funds to help pay for local maternity and infancy work in proportion to the amount of time spent by the nurses in such work. Since the beginning of the

operation of the act 161 counties and 13 communities have assumed entire responsibility for maternity and infancy work begun by the use of maternity and infancy funds. Other counties and communities have assumed partial responsibility for such work or were ready to assume it at the expiration of the maternity and infancy act.

### THE TREND IN INFANT MORTALITY

The value of maternity and infancy work is reflected in the decrease in infant and maternal death rates in 1928 as compared with those in 1921.

Although the general death rate for all ages for the expanding birth-registration area was slightly higher in 1928 than in 1921, the infant mortality rate was lower, according to the figures reported by the United States Bureau of the Census. (Table I, Appendix C, p. 132.) In 1921 in this area, consisting of 27 States and the District of Columbia, the general death rate was 11.7 per 1,000 population; in 1928, in the area consisting of 44 States and the District of Columbia, it was 12, an increase of nearly 3 per cent. The infant mortality rate (deaths of infants under 1 year of age per 1,000 live births) for the expanding area was 76 in 1921 and 69 in 1928, a decrease of 9 per cent. This decrease was obtained despite the fact that a number of States admitted to the area since 1921 had high infant mortality rates. The 1928 rate (67) for the States that have been in the birth-registration area during the entire period 1921 to 1928 is 11 per cent lower than the 1921 rate (75) for this area.

If the same infant mortality rates had prevailed through the seven years of operation of the maternity and infancy act as in 1921, more than 60,000 babies who survived would have died in their first year of life.

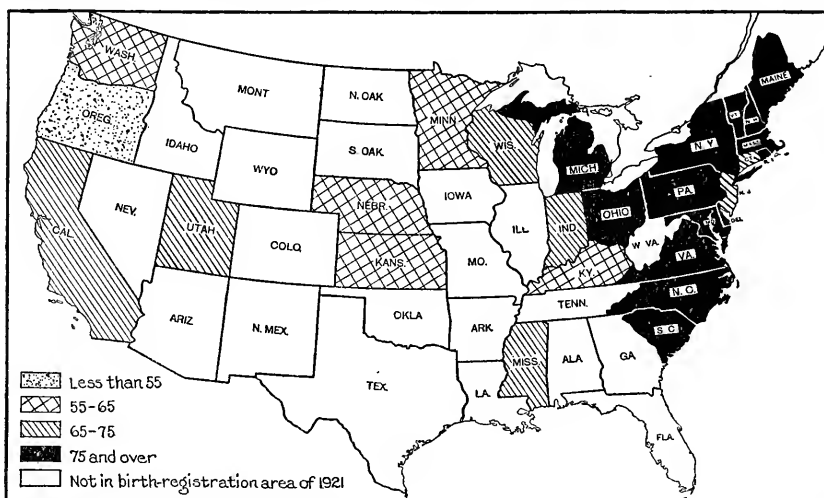
The mortality rate for white infants in 1921 was 72, as compared with 64 in 1928; for colored infants it was 108 in 1921 and 106 in 1928. In urban areas the mortality rate for infants was 78 in 1921 and 69 in 1928; in rural areas it was 74 in 1921 and 68 in 1928.

The maps on page 32 show the infant mortality rates for the States in the United States birth-registration area in 1921 and for these same States in 1928.

Infant mortality has shown a downward trend throughout the period of the cooperation of the States under the maternity and infancy act. In only one year was the rate higher than in 1921; that year was 1923, when the rate was 77, as compared with 76 in 1921. Slight fluctuations have occurred from year to year.

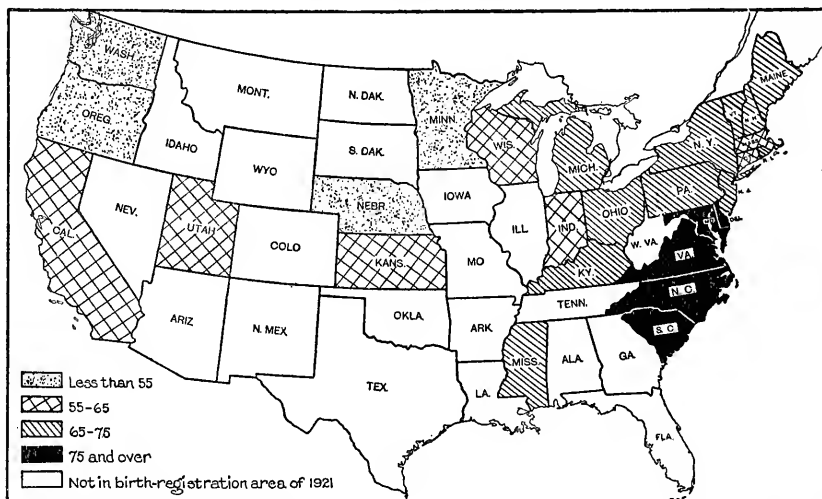
A comparison of infant mortality by causes for the States and the District of Columbia in the birth-registration area of 1921 (exclusive of South Carolina) shows that the rates from the important group causes were lower in 1928 than in 1921, with the exception of the rate from respiratory diseases, which was higher. The later months of 1928 were marked by a serious influenza epidemic, with its attendant respiratory complications. The increase in the infant mortality rate in the area of 1921 from 64 in 1927 to 67 in 1928 was undoubtedly due to the increase in the deaths from respiratory diseases, the mortality rate for the group being 25 per cent higher in 1928 (12.9) than in 1927 (10.3). (Table 7, p. 33.)

The rates from gastrointestinal diseases show a definite downward trend from 1921 to 1928. In 1928 the rate from these causes (7.9) was 47 per cent less than in 1921 (14.8). This group shows a greater



Infant mortality rates in 1921 in the birth-registration States of 1921 (deaths of infants under 1 year of age per 1,000 live births)

reduction than any other group of causes. Although the rates from natal and prenatal causes, which have their origin largely in the mother during pregnancy and confinement, do not show the definite downward



Infant mortality rates in 1928 in the birth-registration States of 1921 (deaths of infants under 1 year of age per 1,000 live births)

trend shown by the rates from gastrointestinal diseases, these rates have nevertheless decreased during the period. As Table 7 shows, the rate from natal and prenatal causes for the 1921 area was 33.9 in

1928 as compared with 36 in 1921. Reduction in infant mortality from gastrointestinal diseases reflects the work done in disseminating information on the importance of breast feeding and the proper preparation of simple formulas of cow's milk, the value of good routine in the care of the baby, sunshine, fresh air, and the introduction into the infant's dietary of the right foods at the right time. Reduction in mortality from natal and prenatal causes also reflects the wider knowledge of the care of the baby, the prenatal care the mother receives, and a greater attention to care at time of childbirth.

TABLE 7.—*Infant mortality rates, by specified groups of causes, in the United States birth-registration area as of 1921, exclusive of South Carolina; 1921-1928*<sup>1</sup>

[Source: United States Bureau of the Census]

Cause of death	Deaths of infants under 1 year of age per 1,000 live births							
	1921	1922	1923	1924	1925	1926	1927	1928
All causes.....	75.0	75.7	76.2	70.3	71.8	73.6	64.0	67.0
Natal and prenatal causes <sup>2</sup> .....	36.0	35.9	35.6	35.0	34.9	34.9	33.5	33.9
Gastrointestinal diseases <sup>3</sup> .....	14.8	12.6	12.3	10.0	11.9	10.2	8.0	7.9
Respiratory diseases <sup>4</sup> .....	10.3	13.7	13.8	11.9	12.2	14.3	10.3	12.9
Epidemic and communicable diseases <sup>5</sup> .....	4.6	4.0	5.4	4.4	3.7	5.0	3.5	3.6
External causes.....	1.0	0.9	1.0	1.0	1.0	1.1	0.9	0.9
All other causes <sup>6</sup> .....	8.3	5.9	5.8	5.7	5.9	5.7	5.3	5.4
Unknown or ill-defined diseases.....		2.6	2.5	2.4	2.3	2.4	2.3	2.4

<sup>1</sup> Including California, Connecticut, Delaware, Indiana, Kansas, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Nebraska, New Hampshire, New Jersey, New York, North Carolina, Ohio, Oregon, Pennsylvania, Rhode Island, Utah, Vermont, Virginia, Washington, Wisconsin, and the District of Columbia. These are the States that were in the birth-registration area every year from 1921 to 1928. South Carolina was dropped from the area in 1925 and reinstated in 1928. Rates are for the period 1921-1928 because 1921 immediately preceded the enactment of the maternity and infancy act and the 1928 figures are the latest available.

<sup>2</sup> Includes premature birth, congenital debility, injuries at birth, other diseases of early infancy, congenital malformations, syphilis, tetanus.

<sup>3</sup> Includes diseases of the stomach, diarrhea and enteritis, dysentery.

<sup>4</sup> Includes bronchitis, bronchopneumonia, pneumonia, influenza.

<sup>5</sup> Includes measles, scarlet fever, whooping cough, diphtheria, erysipelas, meningococcus meningitis, tuberculosis of the respiratory system, tuberculosis of the meninges, other forms of tuberculosis.

<sup>6</sup> Includes convulsions and other causes of death.

Infant mortality rates for the year 1927 are available for 29 foreign countries and for the year 1928 for 13 foreign countries. In 1927 six countries (Australia, the Netherlands, New Zealand, Norway, Santo Domingo, and Switzerland) had lower rates than the United States birth-registration area. Five of the 13 countries whose rates are available for 1928 (England and Wales, Irish Free State, the Netherlands, New Zealand, and Switzerland) had lower rates than the United States birth-registration area. New Zealand, which for many years has had a lower infant mortality rate than any other country, had in 1928 a rate of 36. The States in the United States birth-registration area most nearly approaching this rate are Oregon with a rate of 47, Washington with a rate of 48, Iowa and Nebraska with rates of 53.

The infant mortality rate of 1928 was lower than that of 1921 in the United States and in each of the 12 foreign countries for which rates for both 1921 and 1928 are available. These countries are Austria, Chile, England and Wales, Germany, Irish Free State, Japan, the Netherlands, New Zealand, Northern Ireland, Scotland, Switzerland, and Uruguay.

## THE TREND IN MATERNAL MORTALITY

During the period of the operation of the maternity and infancy act slight fluctuations in the maternal mortality rates have occurred from year to year, according to the figures reported by the United States Bureau of the Census, but no material decrease has been effected, except for certain causes. (Table II, Appendix C, p. 135.) The maternal mortality rate for the United States birth-registration area of 1921, which consisted of 27 States and the District of Columbia, was 68 deaths from causes associated with pregnancy and childbirth per 10,000 live births as compared with 69 in 1928 in the area, which consisted of 44 States and the District of Columbia. This increase in the expanding area is due primarily to admission of States that have large negro populations and high maternal mortality. It is noteworthy that a decrease occurred in the area as of 1921, exclusive of South Carolina, the 1921 rate being 67 and the 1928 rate 64.

Under the maternity and infancy act the contacts with expectant mothers have usually been outside the large urban centers. The effect of this work, therefore, should be reflected in lowered maternal mortality rates in the rural areas. The rural rate for the 27 States and the District of Columbia in the registration area of 1921 was 59 per 10,000 live births. The rate in 1928 was 56 for the same area.

The maternal death rates for the 26 States and the District of Columbia in the birth-registration area from 1921 through 1928 show a downward trend throughout the period. In 1928 the rate from all puerperal causes was 64 per 10,000 live births as compared with 67 in 1921. The rates from puerperal hemorrhage, puerperal septicemia, and puerperal albuminuria and convulsions were lower in 1928 than in 1921. (Table 8.) It may be reasonably concluded that although the maternal mortality rates show no substantial decreases during the period of the maternity and infancy act, the lives of many mothers have been saved in rural areas as a result of the educational programs in regard to the need of prenatal care.

The maps on pages 35 and 36 show the maternal mortality rates in the States in the United States birth-registration area in 1921 and in the rural areas of these States, also the rates in these same States in 1928.

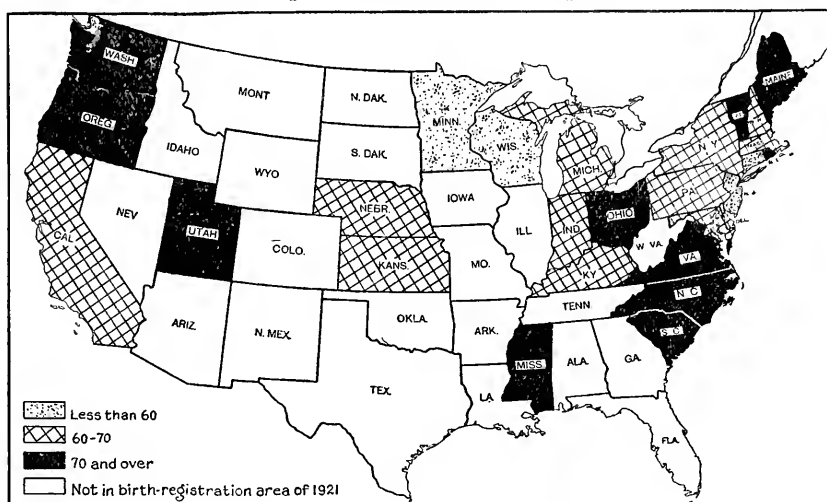
TABLE 8.—*Maternal mortality rates, by cause of death, in the United States birth-registration area as of 1921, exclusive of South Carolina; 1921-1928*<sup>1</sup>

[Source: United States Bureau of the Census]

Cause of death	Deaths of mothers from causes associated with pregnancy and childbirth per 10,000 live births							
	1921	1922	1923	1924	1925	1926	1927	1928
All causes.....	67.3	65.4	65.8	64.0	64.3	64.6	62.3	64.2
Accidents of pregnancy.....	5.7	6.5	6.8	6.0	5.9	7.0	5.9	6.9
Puerperal hemorrhage.....	7.2	6.5	6.6	6.6	6.6	7.0	6.9	7.0
Other accidents of labor.....	6.7	7.6	7.6	6.7	7.1	7.5	7.0	7.8
Puerperal septicemia.....	27.1	23.6	25.0	24.0	24.2	23.6	24.1	23.5
Puerperal albuminuria and convulsions.....	17.4	17.8	16.1	17.0	17.1	16.2	15.1	15.8
All other causes.....	3.2	3.4	3.6	3.8	3.5	3.3	3.4	3.3

<sup>1</sup> Including California, Connecticut, Delaware, Indiana, Kansas, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Nebraska, New Hampshire, New Jersey, New York, North Carolina, Ohio, Oregon, Pennsylvania, Rhode Island, Utah, Vermont, Virginia, Washington, Wisconsin, and the District of Columbia. These are the States that were in the birth-registration area every year from 1921 to 1928. South Carolina was dropped from the area in 1925 and reinstated in 1928. Rates are for the period 1921-1928 because 1921 immediately preceded the enactment of the maternity and infancy act and the 1928 figures are the latest available.

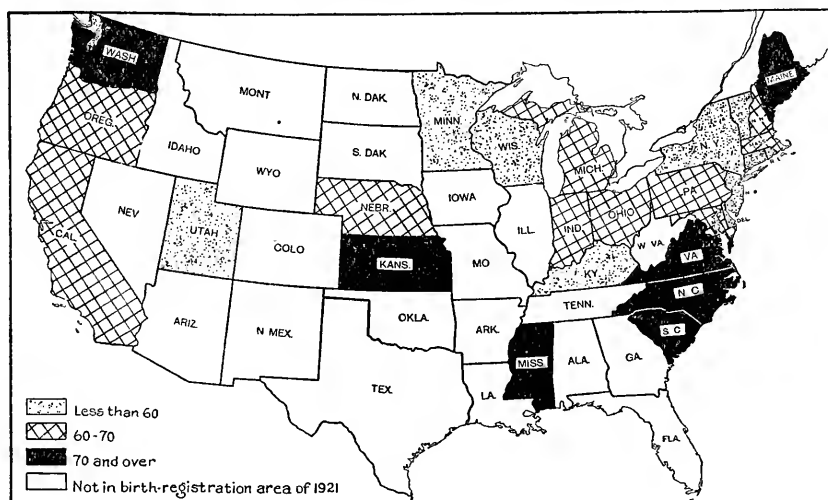
Comparison of maternal mortality rates of the United States birth-registration area with those of foreign countries gives the United States a less favorable position than the comparison of infant mor-



Source: U.S. Bureau of the Census

Maternal mortality rates in 1921 in the birth-registration States of 1921 (deaths of mothers from causes associated with pregnancy and childbirth per 10,000 live births)

tality rates. The maternal mortality rate for the United States in 1927 (65 per 10,000 live births) was higher than that of any of the 20 other countries for which rates are available; in 1928 the rate (69)

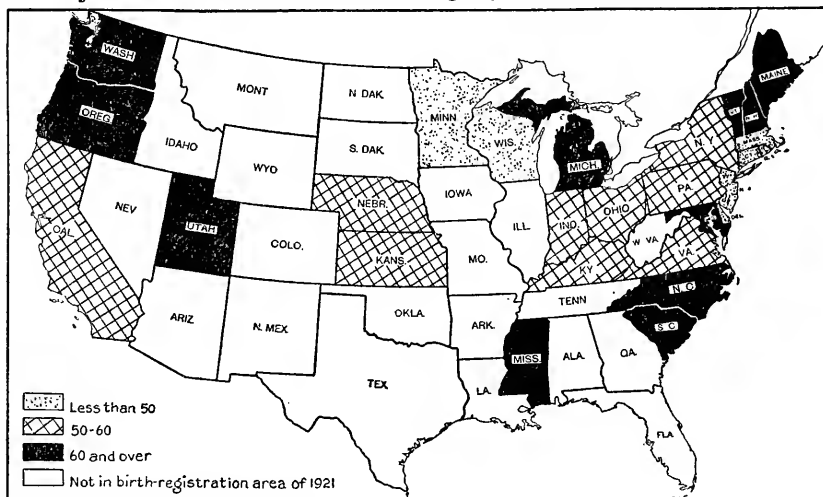


Source: U.S. Bureau of the Census

Maternal mortality rates in 1928 in the birth-registration States of 1921 (deaths of mothers from causes associated with pregnancy and childbirth per 10,000 live births)

exceeded all but one of the 9 other countries reporting figures at this time. The country with a rate most nearly approximating that of the United States was Scotland, which had a rate of 64 in 1927 and 70 in

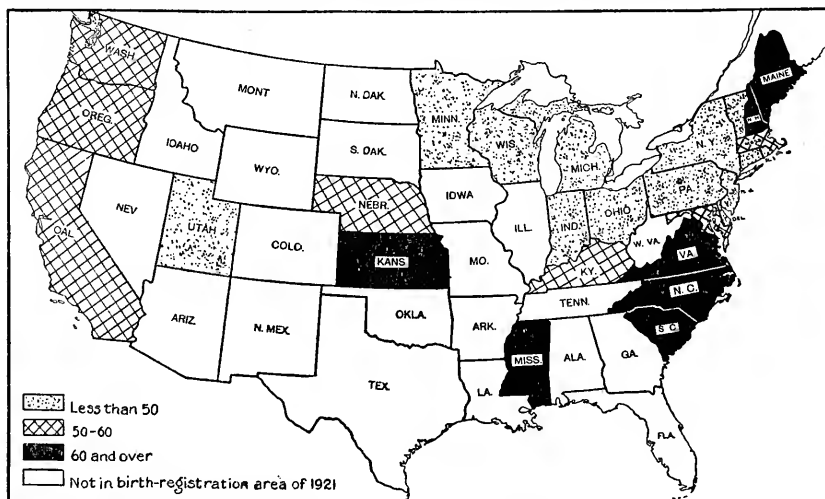
1928. Most of the other countries had rates considerably lower. The country with the lowest rate was Uruguay (22 in 1927 and 24 in 1928).



Source: U.S. Bureau of the Census

Maternal mortality rates in 1921 in rural areas of the birth-registration States of 1921 (deaths of mothers from causes associated with pregnancy and child-birth per 10,000 live births)

Figures for both 1921 and 1927 are available for 18 foreign countries. In 7 the rate for 1927 was higher than that for 1921; in 2 the 1927 rate was the same as the 1921 rate; and in the United States and



Source: U.S. Bureau of the Census

Maternal mortality rates in 1928 in rural areas of the birth-registration States of 1921 (deaths of mothers from causes associated with pregnancy and child-birth per 10,000 live births)

9 other countries the rate was lower. The foreign countries showing 1927 rates lower than those of 1921 were Chile, Czechoslovakia, Finland, Irish Free State, Japan, New Zealand, Northern Ireland, Switzerland, and Uruguay.



In the expanding United States birth-registration area the 1928 maternal mortality rate was 69 as compared with 68 in 1921. The rates of a constant area (such as that of the States in the United States birth-registration area from 1921 to 1928) are, however, more comparable with those of foreign countries, which are generally constant in size, than the rate of the expanding United States birth-registration area. The rate for such an area composed of the States in the United States birth-registration area during the entire period from 1921 to 1928 shows a decrease from 67 in 1921 to 64 in 1928. The 1927 rate for this area was 62. The tendency toward higher rates in 1928 is also apparent in foreign countries, as 6 of the 9 foreign countries for which 1928 rates are available (England and Wales, Irish Free State, the Netherlands, Northern Ireland, Scotland, and Uruguay) had higher rates in 1928 than in 1927. The rates for Japan and New Zealand were the same for both years, and that for Chile was lower.

The phase of the work dealing with the importance of prenatal care for both mother and child has been well begun. Good prenatal care is a factor in preventing puerperal albuminuria and convulsions; and the downward trend in the rate of deaths from this cause of maternal mortality during the operation of the maternity and infancy act has been noted. The number of women seeking such care is still relatively small, and much more education of the public as to the importance of early and regular medical supervision of the expectant mother is needed. Encouraging features are the increased interest shown by women in seeking and by physicians in giving such care and the recognition of the services of the maternity and infancy nurse as the most effective means of reaching expectant mothers.

#### **PUBLIC INTEREST IN THE PROMOTION OF THE WELFARE AND HYGIENE OF MATERNITY AND INFANCY**

Great interest on the part of the public was aroused in the welfare and hygiene of maternity and infancy as a result of the passage of the maternity and infancy act. The regular work of the State agencies and the United States Children's Bureau in the administration of the act has provided additional stimulation of this interest, which has developed quite outside of the actual information disseminated concerning maternal and infant care. Newspapers and magazines have carried columns on the care of mothers and babies. The public has been informed about the essentials of proper care for mothers and babies by material from these unofficial sources, which have been based largely on official information. Editorials have been written, both pro and con, on the Sheppard-Towner Act. In 1921 it was still a moot question whether child hygiene and maternal hygiene were necessary divisions in a good State public-health program and whether they belonged in a disease-prevention program. Now, however, the general public, as well as official State agencies, recognize the necessity of including in public-health programs the prevention of morbidity and mortality of mothers and babies.

Obstetrical procedures and the feeding and care of babies are topics on medical-society programs much more frequently than before the passage of the maternity and infancy act, and sections on infant and child hygiene contribute to the growing interest of public-health programs and meetings. The welfare of the child and the mother is a

topic of increasing interest at conferences of public-health nurses and social workers also. The active support of the great organizations of lay groups that have sponsored the maternity and infancy act from its inception continues and is not confined solely to women's organizations. Some loss of public interest may be expected, however, as a result of the curtailment of the work through the lack of appropriation of Federal funds.

### CONTINUATION OF MATERNITY AND INFANCY WORK

Will the States carry on this joint work unaided by the Federal Government so that there will be no loss to the mothers and babies? Can we expect the expansion of programs on the basis of the demonstrated successes of the last few years without Federal assistance?

Nation-wide interest in this problem of the health of mothers and babies has been almost as important in promoting the work as the money contribution, but funds are essential if gains that have been made are to be conserved and extended. When the Federal maternity and infancy act came to an end every effort was made by its supporters to secure State appropriations equaling at least the combined Federal and State funds that were expended in the fiscal year ended June 30, 1929. This effort for increased appropriations was made in order to continue the work that was being done and also because in the event of the enactment of a law continuing Federal cooperation the increased appropriation would make possible an expansion of activities along the lines that experience had indicated were desirable.

At the expiration of the maternity and infancy act 16 States and the Territory of Hawaii reported that their legislatures had appropriated an amount equaling or exceeding the combined Federal and State funds available for the previous year. These States are: Delaware, Maine, Maryland, Michigan, Missouri, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Pennsylvania, South Dakota, Tennessee, Vermont, and Wisconsin. In some of these the appropriation was made because the women of the State requested it in such overwhelming numbers that refusal seemed impossible. In Florida the support for the work comes from a millage tax for the health department, and the State reported that it expected the returns to enable it to expend an amount equal to the State and Federal funds for maternity and infancy work of 1929.

In five States—California, Indiana, Minnesota, Montana, and Texas—the legislatures had made appropriations that represented large increases over those for the previous year but did not quite equal the amount of combined State and Federal funds which the States had under the maternity and infancy act. The legislatures of seven States—Georgia, Kansas, Ohio, Oklahoma, Rhode Island,<sup>10</sup> West Virginia, and Wyoming—had made appropriations that represented increases over State appropriations for 1929 but were considerably less than the combined State and Federal funds for 1929. In six States—Arkansas, Colorado, Iowa, Nebraska, Oregon, and South Carolina—the appropriations made were the same or less than the State appropriations for 1929, so that the work had to be greatly curtailed. In Arizona, where the legislature made an increased State

<sup>10</sup> In Rhode Island the 1930 legislature appropriated an amount equaling the combined Federal and State funds that the State had under the maternity and infancy act.

appropriation, and in Utah, where the appropriation was the same as in the previous year, the State funds might be spent only if Federal funds were available. In Idaho no State funds might be spent after December 31, 1929, unless Federal funds should be available.

Two States—Nevada and Washington—made no appropriations for carrying on the work. The legislatures of Alabama, Kentucky, Louisiana, Mississippi, and Virginia did not meet in 1929.<sup>11</sup>

The threat of withdrawal clearly acted as a two-edged sword, stimulating some States to greater expenditures and influencing others to reduce the work if the Federal Government withdrew. In a third of the cooperating States the money appropriated was sufficient to continue the present activities; in the others physicians and nurses had to be dismissed and cooperative arrangements with counties and local communities curtailed when the Federal Government failed to continue promoting the health of mothers and babies through somesharing of the expense involved. Even the States securing an appropriation equaling the combined State and Federal funds reported a drop in the interest in the program since July 1, 1929. In other words, the participation of the Federal Government contributed something else as important as money.

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<sup>11</sup> In Alabama the State board of health allotted from its appropriation the sum of \$74,173 for "child hygiene and public-health nursing" in 1929. In Kentucky and Virginia the 1930 legislatures made appropriations equaling the combined Federal and State funds the States had under the maternity and infancy act. In the interim the work in Kentucky has been carried on with funds raised by private subscription. In Mississippi the 1930 legislature appropriated a sum equal to the State appropriation for the previous biennium. In Louisiana the 1930 legislature made no appropriation for maternity and infancy work.

## PRINCIPAL ACTIVITIES OF THE INDIVIDUAL STATES DURING 1929

A summary of the work done in the individual States as reported to the Federal office in their annual reports covering the fiscal year 1929 is given in the following pages. The figures in regard to certain of the main activities have been summarized in Tables 2, 3, 4, and 5.

The outline of activities for each State is preceded by statements in regard to the administrative agency, funds expended, and staff of the agency during the year under review. The sums of money reported expended are not the same as the amounts accepted from the 1929 appropriation.<sup>1</sup> They are instead the actual expenditures during the fiscal year ended June 30, 1929, including any unexpended balances carried over from the previous year.

### ALABAMA

#### STAFF AND ACTIVITIES IN 1929

Administrative agency: State board of health, bureau of child hygiene and public-health nursing, Montgomery.

Funds expended: Federal, \$25,836.95; State, \$20,836.95; total, \$46,673.90.

#### Staff:

Director (nurse), 3 nurses (part year), 2 vital-statistics clerks (part year), 1 bookkeeper (part time, part year), 1 stenographer (part year). Thirty-three county nurses were paid in part from maternity and infancy funds.

#### Activities:

Child-health conferences conducted by physicians—1,402; infants and preschool children registered and examined—3,998; visits to conferences—10,585.

Defects found in children examined at conferences—1,363; children having defects—1,218. Parents had defects corrected in 553 of the children.

Prenatal conferences conducted by physicians—223; expectant mothers examined—1,897; visits to conferences—2,323.

Conferences conducted by nurses, no physician present—375; visits to conferences by mothers—5,218.

Classes for girls in care of infants and preschool children—51 organized; girls enrolled—1,217; number completing course—314.

Classes for midwives—14 organized; midwives enrolled—719. Permits to practice issued—571.

Home visits by nurses—47,651 (prenatal cases seen, 5,006; obstetrical cases, 27; postnatal cases, 3,744; infants, 26,450; preschool children, 10,095).

Surveys—2: (1) Of maternal mortality (continued from the previous year), state-wide, in cooperation with the United States Children's Bureau and with the indorsement of the State medical society, the cost of the work being paid in part by the State and in part by the United States Children's Bureau. (2) Of midwives, in 1 county.

Talks and lectures—1,662.

Literature distributed—many pamphlets on maternal and child care.

Breast feeding was stressed in the instruction given to mothers, in talks to groups, and in visits at homes.

Counties in the State—67; counties in which maternity and infancy work was done during the year—31; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—33.

The following organizations cooperated in the bureau's work: State board of education, State child-welfare department, Alabama Polytechnic Institute (agricultural-extension service), committee on maternal welfare of the State medical association, and the parent-teacher association.

<sup>1</sup> See footnote 3, Table 1, p. 3.

INFANT AND MATERNAL MORTALITY RATES<sup>1</sup>

Alabama was not admitted to the United States birth-registration area until 1927. Mortality rates of earlier years therefore are not available for comparison with those of 1928.

In 1928 the general death rate for the State (12.4) slightly exceeded that for the birth-registration area (12). Owing largely to the high mortality among colored infants and mothers, the infant and maternal mortality rates for the State were considerably higher than those for the birth-registration area. The infant mortality rate for the State was 75, in contrast to 69 for the birth-registration area; the maternal mortality rate for the State was 94, in contrast to 69 for the area. The rate for colored infants in the State was 94 and that for white infants was 64; the rate for colored mothers was 128 and that for white mothers was 76.

## ARIZONA

## STAFF AND ACTIVITIES IN 1929

Administrative agency: State board of health, child-hygiene division, Phoenix.

Funds expended: Federal, \$13,136.02; State, \$7,253.71; total, \$20,389.73.

## Staff:

Director, 11 nurses (7 part year), 1 stenographer (part year).

## Activities:

Child-health conferences conducted by physicians—28; infants and preschool children registered and examined—451; visits to conferences—491.

Defects found in children examined at conferences—685; children having defects—347. Parents had defects corrected in 73 of the children.

Conferences conducted by nurses, no physician present—27; infants and preschool children inspected—307; mothers instructed in prenatal care—16; visits to conferences by children—383.

Dental conferences—2; preschool children receiving dental examination—56.

Classes for girls in care of infants and preschool children—2 organized; girls enrolled—41; number completing course—35; lessons in course—8.

Classes for mothers—8 organized; mothers enrolled—111; number completing course—105. The number of lessons in the courses varied for the different classes.

Home visits by nurses—11,546 (prenatal cases seen, 365; obstetrical cases, 22; postnatal cases, 232; infants, 1,352; preschool children, 1,617).

Community demonstrations—78, of a maternity and infancy public-health nursing program. The work included health conferences, home visits, class instruction, and home demonstrations, one or more of these activities being conducted in each of 78 communities.

Group demonstrations—88, on preparing obstetrical supplies, preparing bed for confinement, bathing patient in bed, bathing the baby, preparing formulas and caring for bottles, making bandages and dressings.

Talks and lectures—71.

Literature distributed—71,598 pieces.

New names registered for prenatal letters—695; prenatal letters distributed—698 sets.

Nutrition work was done through individual instruction to mothers.

Breast feeding was stressed by the nurses in their interviews with mothers and in the literature distributed. It was estimated that 80 per cent of the infants in the State are breast fed at birth, 50 per cent at 3 months of age and 30 per cent at 9 months.

Infants born in the State during the year—9,165; infants under 1 year of age reached by the work of the division—8,156 (through conferences, home visits, and literature mailed with birth-registration cards); preschool children reached—2,206 (through conferences and home visits); expectant mothers reached—1,283 (through conferences, home visits, and prenatal letters).

The division sends literature on infant hygiene to parents of all infants whose births are registered in the State bureau of vital statistics.

<sup>1</sup> The infant mortality rate discussed in this section and in similar sections of the reports of other States is the number of deaths of infants under 1 year of age per 1,000 live births in the designated year. The maternal mortality rate is the number of deaths of mothers from causes associated with pregnancy and childbirth per 10,000 live births. For tables of these rates for the United States birth-registration area and for the individual States that were in the area, also for their white and colored populations and for urban and rural areas, see Appendix C, p. 132. The general death rate is the number of deaths of persons of all ages per 1,000 population.

## Activities—Continued.

Counties in the State—14; counties in which maternity and infancy work was done during the year—10; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—14.

The following organizations cooperated in the division's work: American Red Cross, State federation of women's clubs, church relief societies, and parent-teacher associations. They assisted with conferences, purchased milk for children, and provided the means for correction of some physical defects. Among the children examined at health conferences reported in the foregoing paragraphs were 141 examined in the "Get ready for school" campaign sponsored by the National Congress of Parents and Teachers.

The outstanding feature of the year's work was the number of home visits made by the staff nurses.

## INFANT AND MATERNAL MORTALITY RATES

Arizona was not admitted to the United States birth-registration area until 1926. Mortality rates of earlier years therefore are not available for comparison with those of 1928.

In 1928 both the general death rate (13.6) and the infant mortality rate (142) for the State were higher than those for the United States birth-registration area (12 and 69). The general death rate, however, was only 1.6 points higher, while the infant mortality rate was more than twice as high. This higher rate was due chiefly to influenza and the accompanying respiratory diseases, which were responsible for almost a fourth of the total infant deaths in 1928.

The maternal mortality rate for the State (77) was also higher than that for the birth-registration area (69). In the State, as in the area, more maternal deaths were due to puerperal septicemia than to any other cause.

## ARKANSAS

## STAFF AND ACTIVITIES IN 1929

Administrative agency: State board of health, bureau of child hygiene, Little Rock.

Funds expended: Federal, \$26,246.14; State, \$12, 755.21; total, \$39,001.35.

## Staff:

Director (State health officer serving), 2 nurses (1 part year), 2 field workers (1 part year), 1 stenographer. Thirty-six county nurses were paid in part from maternity and infancy funds.

## Activities:

Child-health conferences conducted by physicians—261; infants and preschool children registered and examined—4,199.

Defects found in children examined at conferences—5,179; children having defects—2,710. Parents were known to have had defects corrected in 451 of the children (report incomplete).

Prenatal conferences conducted by physicians—5; expectant mothers registered and examined—66.

Conferences conducted by nurses, no physician present—26; infants and preschool children inspected—651; mothers instructed in prenatal care—80; visits to conferences by children—692.

New permanent child-health centers—3 established as a result of the maternity and infancy work. They are supported by public and private funds.

Classes for girls in care of infants and preschool children—88 organized; girls enrolled—1,760; lessons in course—average of 12.

Classes for mothers—143 organized; mothers enrolled—2,039. In addition 56 self-directed preschool child-study circles used the lesson outlines issued by the United States Children's Bureau.

Classes for midwives—40 organized; class meetings—420; midwives enrolled—1,073. The midwives do not complete a specified series of lessons; the course is gradually enlarged as they show capability for more advanced instruction. There has been a decided improvement in the midwife situation. The midwives are giving more attention to prenatal care, and when possible they take their patients to classes to receive instruction from the nurses. Frequently the midwives in remote areas arrange with the physician and nurse of the county health unit to conduct conferences in their homes. Intensive work was done in 56 counties, and in addition the bureau examined birth certificates for new midwife names in 75 counties and followed up these midwives by correspondence.

Activities—Continued.

Home visits by nurses—11,799 (to prenatal cases, 713; obstetrical cases, 24; postnatal cases, 867; infants, 2,133; preschool children, 3,493; miscellaneous, 4,569).

Group demonstrations—872, on preparation of foods, maternity outfits, and other phases of maternal and infant care.

Survey—1, of birth registration, in 75 counties.

Campaign—1, for the examination of preschool children and the correction of their defects. This is a year-round activity. Thirty-seven counties were well organized for this campaign, and most of the other counties did some work. About 4,000 preschool children met the "Arkansas Health Standard" for preschool children, which requires that they show proof of registration of birth, be of normal weight, have had physical defects corrected, practice health habits, and be immunized against diphtheria, small-pox, and typhoid fever.

Intensive work was done in 10 counties to have health conferences conducted for preschool children and educational work done among midwives.

Talks and lectures—3,105.

Literature distributed—109,309 pieces.

Nutrition work was done through individual instruction to preschool children.

Exhibits conducted—357. Exhibit material prepared—graphs, charts for testing vision. Exhibit material was lent 46 times.

Breast feeding was stressed in the instruction given in classes for mothers and classes for midwives, also in the general educational activities of the bureau.

Infants born in the State during the year—38,179; infants and preschool children reached by the work of the bureau—57,725; expectant mothers reached—16,430.

Counties in the State—75; counties in which maternity and infancy work was done during the year—75.

As a result of the bureau's work 4 county child-health councils were organized. The development of 3 permanent and 3 itinerant nursing services was partly due to the efforts of the bureau.

The bureau gave advisory and supervisory service to local organizations doing child-health work.

The following organizations cooperated in the bureau's work: State board of education, State university (extension service), State tuberculosis association, State society for crippled children, State federation of women's clubs, women's auxiliary of the State medical society, American Legion and its auxiliary, Woman's Christian Temperance Union, and the parent-teacher association. They assisted in the campaign to have preschool children examined and correction made of physical defects. In addition to the children examined at health conferences reported in the foregoing paragraphs, 1,069 children were examined in the "Get ready for school" campaign, sponsored by the National Congress of Parents and Teachers.

Among the outstanding features of the year's work were the compiling and initiating of the Arkansas Health Standard.

INFANT AND MATERNAL MORTALITY RATES

Arkansas was not admitted to the United States birth-registration area until 1927. Mortality rates of earlier years therefore are not available for comparison with those of 1928.

The general death rate for the State in 1928 (10.3) was lower than the rate for the birth-registration area (12). The infant mortality rate also was lower than that for the birth-registration area, as the following figures show:

	Arkansas	Area
Total.....	67	69
Urban.....	76	69
Rural.....	66	68
White.....	61	64
Colored.....	86	106

The maternal mortality rate for the State was slightly lower in 1928 (88) than in 1927 (90), but it was higher than the corresponding rate for the birth-registration area, owing in part to the high mortality rate for colored mothers (151) in contrast to that for white mothers (70). The maternal mortality rate for urban areas of the State (129) was higher than for rural areas (84).

## CALIFORNIA

## STAFF AND ACTIVITIES IN 1929

Administrative agency: State department of public health, bureau of child hygiene, San Francisco.

Funds expended: Federal, \$38,596.19; State, \$28,034.66; total, \$66,630.85.

## Staff:

Director (physician), 5 physicians (3 part year, 1 part time), 2 nurses (1 part year), 1 dentist (2 months), 2 inspectors of maternity homes, 1 financial clerk (part time), 1 mailing clerk, 3 stenographers (1 part time, 1 for two months). Twenty-three county nurses in 14 counties were paid wholly or in part from maternity and infancy funds.

Volunteer assistants—75 physicians, 35 dentists, 100 nurses, 350 lay persons.

## Activities:

Child-health conferences conducted by physicians—811; infants and preschool children registered and examined—8,801; visits to conferences—12,629.

Prenatal conferences conducted by physicians—154; expectant mothers registered and examined—418; visits to conferences—1,411.

Conferences conducted by nurses, no physician present—115; infants and preschool children inspected—2,436; visits to conferences by children—9,500.

Dental conferences—74; preschool children receiving dental examination—756.

New permanent child-health centers—11 established as a result of the bureau's maternity and infancy work. They were supported by city, county, and maternity and infancy funds.

New permanent prenatal center—1 established as a result of the maternity and infancy work. It was supported by city, county, and maternity and infancy funds.

Classes for girls in care of infants and preschool children—5 organized; girls enrolled and completing course—110; lessons in course—18. Two additional classes were organized in one county, but figures on enrollment and other items were not reported.

Classes for mothers—56 organized; mothers enrolled and completing course—603; lessons in course—18.

Home visits by nurses—25,256 (prenatal cases seen, 652; obstetrical cases, 37; postnatal cases, 340; infants, 2,632; preschool children, 4,050).

Maternity homes inspected—250; inspections made—291. Maternity hospitals inspected—371; inspections made—414.

Community demonstrations—2, of a maternity and infancy public health nursing program. As the result of the demonstration in 1 community, steps were taken to secure a permanent public-health nurse.

Group demonstrations—307, on breast feeding, care of infants, preparation of food, method of examining preschool children, maternity outfit, prenatal care, and other phases of maternal, infant, and child care.

Survey—1, of maternal mortality (continued from the previous year), in cooperation with the United States Children's Bureau and with the indorsement of the State medical association.

Campaigns—5: (1) For examination of preschool children and correction of their defects before the children should enter school, state-wide. (2) For vaccination against smallpox, in 1 county. (3, 4, 5) For vaccination against smallpox and immunization against diphtheria, in 3 counties.

Talks and lectures—208, to audiences totaling approximately 10,300 persons.

Literature prepared—Thumb and Finger Sucking, Directions for Giving Sun Baths, Vaccination against Smallpox, Prevention of Diphtheria, Some Simple Facts about Scarlet Fever.

Literature distributed—18,666 pieces.

New names registered for prenatal letters—1,511; prenatal letters distributed—3,536 sets.

Lectures on the medical aspects of prenatal care, the prevention and control of toxemias, and the care of sepsis were given before county medical societies by an obstetrician employed for four months for this purpose.

Nutrition work was done through individual instruction to mothers.



**Activities—Continued.**

Exhibits conducted—22, at fairs and various meetings. Exhibit material prepared—figures dressed to represent physicians and nurses, to show the distribution of the bureau's service throughout the State; train for which the stations were named to show proper food and care for infants in suitable sequence through the first year of life. Exhibit material was lent 30 times.

Article prepared—The Preschool Clinic.

Statistical study made—infant and maternal mortality in hospital and home confinements (in progress).

Breast feeding was stressed in the work of the pediatricians and public-health nurses and in the literature distributed to mothers.

Infants born in the State during the year—72,882; infants under 1 year of age reached by the work of the bureau (exclusive of those reached by literature distributed)—6,374; preschool children reached—more than 12,300; expectant mothers reached—4,606.

Counties in the State—58; counties in which maternity and infancy work was done during the year—57; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—58.

Since the beginning of the State's cooperation under the maternity and infancy act 17 counties have assumed the responsibility for maternity and infancy work begun with maternity and infancy funds.

The bureau gave advisory service to full-time health units that did not have a nurse paid in full or in part from maternity and infancy funds, also to a city health department.

The following organizations cooperated in the bureau's work: State board of education, State medical and tuberculosis associations, State league of women voters, State federation of women's clubs, American Red Cross, American Association of University Women, men's service clubs, and the parent-teacher association. The assistance given included furnishing part of the equipment for health centers established by the bureau.

**INFANT AND MATERNAL MORTALITY RATES**

The general death rate for California in 1928 (14.5) was 10 per cent higher than in 1921 (13.2). The infant mortality rate in 1928 (62), however, was 6 per cent lower than in 1921 (66). For urban areas of the State the infant mortality rate was 55 in 1928, as compared with 60 in 1921; for rural areas the rate was 72 in 1928 as compared with 75 in 1921.

The maternal mortality rate in 1928 (61) was 10 per cent lower than in 1921 (68). The rate for urban areas of the State was 64 in 1928 and 78 in 1921; that for rural areas was 57 in 1928 and 55 in 1921. The difference in the maternal mortality rates for these two years is not statistically significant, but the general trend throughout the period of cooperation under the maternity and infancy act has been definitely downward.

The work of the State bureau of child hygiene in the inspection of maternity hospitals, which are largely in urban areas, and improvements in the hospital service seem to be reflected in the decline in both infant and maternal mortality in these areas.

**COLORADO****STAFF AND ACTIVITIES IN 1929**

Administrative agency: State department of public instruction, child-welfare bureau, Denver.

Funds expended: Federal, \$14,942.55; State, \$4,942.55; total, \$19,885.10.

**Staff:**

Director, 3 physicians (part time), 3 nurses (1 part time), 1 stenographer, 2 clerks (1 part year). Additional physicians, nurses, and a clerk were employed for short periods.

Volunteer assistants—54 physicians, 27 dentists, 9 nurses, 557 lay persons.

## Activities:

- Child-health conferences conducted by physicians—93; infants and preschool children registered and examined—2,274. The organization for the conferences was done by a representative from the extension division of the State university. Each community was asked to furnish a group of not less than 20 women to assist the local physicians and visiting specialists at the time of the conference. The staff of the conference unit consisted of the director of the bureau, a pediatrician, a nurse, a clerk, and representatives from the State board of health, the State psychopathic hospital, and the State dental and tuberculosis associations. An obstetrician accompanied the unit to communities in which as many as 20 expectant mothers were registered for examination.
- Defects found in children examined at conferences—5,515; children having defects—2,166. Parents had defects corrected in 385 of the children.
- Prenatal conferences conducted by physicians—7; expectant mothers registered and examined—35.
- Conferences conducted by nurses, no physician present—12; children inspected—306; mothers instructed in prenatal care—226.
- Dental conferences—52; preschool children receiving dental examination—1,383.
- Classes for girls in care of infants and preschool children—48 organized; girls enrolled and completing course—182; lessons in course—10 to 12.
- Classes for mothers—5 organized; mothers enrolled and completing course—53; lessons in course—3.
- Home visits by nurses—1,842 (prenatal cases seen, 161; infants, 542; preschool children, 1,139).
- Group demonstrations—250, on making and sterilizing maternity pack, making baby clothes, bathing and dressing the baby, and preparing artificial food.
- Survey—1, of birth registration, in 14 counties.
- Campaigns—2, for more complete birth registration, in 2 counties.
- Talks and lectures—195.
- Literature prepared—preschool health-record card and birth-registration cards (revised).
- Literature distributed—14,600 pieces.
- New names registered for prenatal letters—362; prenatal letters distributed—362 sets.
- Graduate course for physicians—throughout the year the staff pediatrician conducted a course in pediatrics at the Colorado General Hospital and Medical School. The enrollment varied from 6 to 8.
- Nutrition work was done through nutrition classes in conjunction with classes for girls in four counties.
- Exhibits conducted—6, of posters, models, and literature. Exhibit material prepared—posters, baby basket, tooth-brush exhibit for preschool children.
- Breast feeding was promoted by physicians at all health conferences, by all field workers in their contacts with mothers, and by literature sent to mothers of newborn infants.
- Infants born in the State during the calendar year 1928—19,065; infants under 1 year of age reached by the work of the bureau during the fiscal year ended June 30, 1929—4,059; preschool children reached—4,813; expectant mothers reached—3,523.
- The bureau sends literature on infant hygiene to parents of all infants whose births are reported in the newspapers.
- Counties in the State—63; counties in which maternity and infancy work was done during the year—38; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—61.
- Since the beginning of the State's cooperation under the maternity and infancy act two counties and one community have assumed the responsibility for maternity and infancy work begun with maternity and infancy funds.
- As a result of the bureau's work, classes in infant hygiene for young girls were conducted by county nurses, and campaigns for the prevention of contagious diseases and the correction of physical defects were conducted under local auspices.

## Activities—Continued.

The following organizations cooperated in the bureau's work: State university (extension division), psychopathic hospital, and agricultural college; State medical, dental, and tuberculosis associations; State federation of women's clubs; Woman's Christian Temperance Union; men's service clubs; and the parent-teacher association. They assisted in organizing and conducting health conferences, in promoting county nursing services, and in conducting campaigns for the prevention of contagious diseases and the correction of physical defects. Among the children examined at health conferences reported in the foregoing paragraphs were 308 examined in the "Get ready for school" campaign sponsored by the National Congress of Parents and Teachers.

Among the outstanding features of the year's work were the assistance given to the State board of health in birth-registration work, which resulted in the admission of the State to the United States birth-registration area, and the arousing of interest of physicians and expectant mothers in better prenatal care.

## INFANT AND MATERNAL MORTALITY RATES

Colorado was not admitted to the United States birth-registration area until 1928. Mortality rates of earlier years, therefore, are not available for comparison with those of 1928. In 1928 the general death rate for the State (12.9) was higher than that for the birth-registration area (12), and the infant mortality rate (89) was considerably higher than that for the area (69).

The maternal mortality rate (96) was also higher than that for the area (69).

## DELAWARE

## STAFF AND ACTIVITIES IN 1929

Administrative agency: State board of health, division of child hygiene, Dover. Funds expended: Federal, \$15,708.02; State, \$9,559.83; total, \$25,267.85.

## Staff:

Director (physician), 2 physicians (part time), 9 nurses, 1 vital-statistics clerk and bookkeeper, 1 stenographer. Five physicians were employed as needed to conduct conferences.

## Activities:

Combined prenatal and child-health conferences conducted by physicians—56; expectant mothers registered and examined—29; infants and preschool children registered and examined—241; visits to conferences by expectant mothers—89; visits by children—685.

Child-health conferences conducted by physicians—293; infants and preschool children registered and examined—967; visits to conferences—3,004.

Defects found in children examined at conferences—1,096; children having defects—943. Parents had defects corrected in 571 of the children.

Prenatal conferences conducted by physicians—52; expectant mothers registered and examined—196; visits to conferences—374.

Conferences conducted by nurses, no physician present—832; infants and preschool children inspected—2,485; mothers instructed in prenatal care—301; visits to conferences by children—14,964; visits by mothers—712.

New permanent combined prenatal and child-health centers—4 established as a result of the division's maternity and infancy work. They are supported by State and Federal funds.

Classes for girls in care of infants and preschool children—3 organized; girls enrolled—84; number completing course—78; lessons in course—12.

Classes for midwives—18, organized by a physician lent to the State by the United States Children's Bureau; midwives enrolled and completing course—95; lessons in course—7. In addition, 162 midwives attended classes held every three months by members of the division's staff in four districts in each county in the State.

Home visits by nurses—9,641 (prenatal cases seen, 217; obstetrical cases, 91; postnatal cases, 749; infants, 2,407; preschool children, 4,109).

Survey—1, to ascertain the number and ages of preschool children in all the towns in the State and conditions of sanitation affecting them (continued from the previous year).

Campaign—1, for immunization of preschool children against diphtheria.

Talks and lectures—118.

## Activities—Continued.

Literature distributed—52,226 pieces.

New names registered for prenatal letters—788; prenatal letters distributed—732 sets.

Exhibits conducted—2, at fairs. Exhibit material prepared—graphs and charts. Exhibit material was lent four times.

Articles prepared—Infant Feeding—Prenatal and Neonatal Care Essential; The Value of Health Work among Mothers and Babies; Infant and Maternal Mortality; and articles for the bimonthly bulletin of the State board of health.

Statistical studies made—maternal mortality; infant mortality, white and colored, by counties; decline in the birth rate.

Breast feeding was emphasized in various activities of the division. It was estimated that only about 50 per cent of the infants in the States are breast fed.

Infants born in the State during the year—3,946; infants under 1 year of age reached by the work of the division—3,867; preschool children reached—8,972; expectant mothers reached—987.

The division sends literature on infant hygiene to parents of all infants whose births are registered in the State bureau of vital statistics.

Counties in the State—3; counties in which maternity and infancy work was done during the year—3.

The following organizations cooperated in the division's work: State anti-tuberculosis society, State parent-teacher association, and the Wilmington Visiting Nurse Association. The visiting-nurse association reports to the division the names of expectant mothers, to whom the division sends prenatal letters and other informative literature.

The outstanding feature of the year's work was the increase in activities to promote prenatal care.

## INFANT AND MATERNAL MORTALITY RATES

The general death rate for Delaware in 1928 (13.1) was the same as in 1921; the infant mortality rate in 1928 (78), however, was 20 per cent lower than in 1921 (98). The rate for urban areas was 93 in 1921 and 71 in 1928; that for rural areas was 103 in 1921 and 86 in 1928. The effect of increasingly better supervision and care of infants is reflected in these rates. If the 1921 rate had prevailed in the State in 1928, 20 more infants in every 1,000 born alive would have died before reaching their first birthday, a total saving of 84 infant lives. The decrease in the infant mortality rates is especially noticeable in the rate from gastrointestinal diseases, which was 47 per cent lower in 1928 (13.2) than in 1921 (24.9). The lowest rate from these diseases during the period 1921 to 1928 occurred in 1927 (11.3). The 1928 rate was slightly higher, but the difference was not statistically significant.

The maternal mortality rate, although lower during the last two years of the maternity and infancy act than in any previous year, showed considerable fluctuation during the period of operation of the act. The rate for the State in 1928 (56) was lower than in 1921 (63). The rate for urban areas in 1928 (70) also was lower than in 1921 (102). In rural areas, however, the rate in 1928 (42) was higher than in 1921 (21). As the actual number of births in the State is small, very slight increases or decreases in the number of maternal deaths make very noticeable changes in the maternal mortality rates; in general, changes in these rates must be regarded as fluctuations rather than as indexes of improvement or retrogression in the situation.

## FLORIDA

## STAFF AND ACTIVITIES IN 1929

Administrative agency: State board of health, bureau of child hygiene and public-health nursing, Jacksonville.

Funds expended: Federal, \$21,846.68; State, \$11,531.72; total, \$33,378.40.

## Staff:

Director (nurse, part time), 10 nurses (6 part year, 1 part time), 1 auditor (part time), 1 stenographer (part time), 1 file clerk, 1 typist (part time).

Volunteer assistants—119 physicians, 94 nurses, 296 lay persons.

## Activities:

Child-health conferences conducted by physicians—89; infants and preschool children registered and examined—2,212; number of children having defects—1,586.

Conferences conducted by nurses, no physician present—269; infants and preschool children inspected—4,749.

New permanent combined prenatal and child-health center—1 established as a result of the bureau's maternity and infancy work. It is supported by local funds.

Classes for girls in care of infants and preschool children were conducted in five counties. The course covered 24 lecture hours.

Classes for mothers were conducted in varying numbers to cover the communities as they were visited by district nurses in each county. The talks and demonstrations given were adapted to local needs.

Classes for midwives—807 organized; midwives enrolled—2,939; number completing course—117; lessons in course—4.

When cooperation under the maternity and infancy act was begun (in 1922) 4,000 midwives (mostly colored) were known to be practicing in the State. Through the work of the bureau about 3,000, who were physically unfit or of such mentality that they were incapable of receiving instruction, have ceased to practice. The only new midwives permitted to obtain licenses are women who can read and write, as this simplifies the process of instruction. Great improvement in the work of the midwives has been noted during the period of cooperation.

Home visits by nurses—13,876 (to prenatal cases, 597; postnatal cases, 177; infants, 2,947; preschool children, 3,405). Other visits were made to interview midwives, to investigate stillbirths and cases of communicable diseases, to secure registration of births, and to arrange for child-health conferences.

Group demonstrations were made in connection with the work with midwives and in classes for women and girls, and occasionally at meetings of women's clubs and at nurses' institutes. Each nurse carried the following demonstration material: Doll, doll bed, mattress, and bedclothes, newspaper pads for bed, layette, nipples, bottles, boric acid, castile soap, cotton, baby powder, olive oil, cod-liver oil, tomato juice, zwieback, dry milk, piece of soap (for pin cushion), and posters.

Talks and lectures—343.

Literature distributed—25,824 pieces.

Nutrition work was done through group and individual instruction.

Exhibits were conducted at all meetings in routine district work.

Articles prepared—8, on various subjects relating to child care.

Institutes on maternity and infancy work—10, conducted for nurses.

Infants born in the State during the year—27,309; infants and preschool children reached by the work of the bureau—26,119; expectant mothers reached—978.

Counties in the State—67; counties in which maternity and infancy work was done during the year—67.

Since the beginning of the State's cooperation under the maternity and infancy act 13 counties have assumed the responsibility for maternity and infancy work begun with maternity and infancy funds.

The following organizations cooperated in the bureau's work: State medical and dental associations, State federation of women's clubs, business, fraternal, and church organizations, the American Legion, and the parent-teacher association. The assistance given included free examinations made by physicians and dentists, financial support, and help in conducting conferences, making home visits, and distributing literature.

Among the outstanding achievements of the year was the securing of a State appropriation sufficient to carry on the entire maternity and infancy program after the withdrawal of Federal aid at the close of the fiscal year under review.

## INFANT AND MATERNAL MORTALITY RATES

Florida was not admitted to the United States birth-registration area until 1924. Mortality rates of earlier years therefore are not available for comparison with those of 1928.

The general death rate for the State in 1928 (13.4) was 4 per cent higher than in 1924 (12.9). The infant mortality rate, however, has shown a decrease from 1924 to 1928. The rates for these two years were as follows:

Area	Deaths of infants under 1 year of age per 1,000 live births		
	1924	1928	Percentage of difference
State.....	82	67	-18
Urban.....	88	65	-26
Rural.....	80	68	-15
White.....	70	55	-21
Colored.....	107	95	-11

The maternal mortality rate showed a downward trend during the period 1924 to 1928. The rates for these two years were as follows:

	1924	1928
State.....	121	101
Urban.....	109	80
Rural.....	126	110
White.....	90	91
Colored.....	187	125

This difference in the maternal mortality rates for 1924 and 1928 is due primarily to the change in the rates for colored mothers, as the rate for white mothers remained practically stationary. The training and supervision of negro midwives by the State bureau of child hygiene no doubt aided in reducing the maternal mortality among the colored mothers. The maternal mortality rate in both urban and rural areas was lower in 1928 than in 1924.

## GEORGIA

### STAFF AND ACTIVITIES IN 1929

Administrative agency: State board of health, division of child hygiene, Atlanta.  
Funds expended: Federal, \$42,482.32; State, \$39,541.69; total, \$82,024.01.  
Staff:

Director (physician, part time), 1 physician, 5 nurses, 1 dentist, 1 laboratory assistant, 2 stenographers (1 part year), 1 typist. Twenty-two county nurses were paid from maternity and infancy funds (1 half time, 6 part year.)

#### Activities:

Combined prenatal and child-health conferences conducted by physicians—37; expectant mothers registered and examined—19; infants and preschool children registered and examined—157; visits to conferences by children—165.

Child-health conferences conducted by physicians—492; infants and preschool children registered and examined—3,668; visits to conferences—5,248. Many of the conferences were conducted on the division's "health-mobile," which tours the State annually.

Defects found in children examined at conferences—16,460; children having defects—3,378. Parents had defects corrected in 257 of the children.

Prenatal conferences conducted by physicians—504; expectant mothers registered and examined—2,232; visits to conferences—5,568.

Conferences conducted by nurses, no physicians present—297; infants and preschool children inspected—2,402; mothers instructed in prenatal care—261; visits to conferences by children—2,844; visits by expectant mothers—556.

New permanent combined prenatal and child-health centers—6 established as a result of the division's maternity and infancy work. They are supported by local public and private funds.

## Activities—Continued.

- New permanent child-health centers—2 established as a result of the division's maternity and infancy work. They are supported by local public and private funds.
- New permanent prenatal centers—6 established as a result of the division's maternity and infancy work. They are supported by local public and private funds.
- Classes for girls in care of infants and preschool children—403 organized; girls enrolled—4,554; number completing course—2,691; lessons in course—10.
- Classes for mothers—42 organized; mothers enrolled—650; number completing course—592. The number of lessons in the course varied for the different groups.
- Classes for midwives—455 organized; midwives enrolled—2,374; number completing course—2,730 (includes some who enrolled in the previous year); lessons in course—10. All midwives known to be practicing in the State have been visited since the beginning of the State's cooperation under the maternity and infancy act.
- Home visits by nurses—60,336 (prenatal cases seen, 3,100; obstetrical cases, 531; postnatal cases, 1,752; infants, 4,257; preschool children, 6,451).
- Group demonstrations—1,151, on bathing and dressing the baby, preparing bed for confinement, preparing clothes for mother and baby, caring for the baby's eyes and the cord, and disinfecting the hands, to groups of mothers and midwives.
- Campaigns—46: (1) For the observance of May Day as Child Health Day. (2, 3) For immunization of children against diphtheria (1 campaign conducted in the fall, 1 in the spring). (4-46) For the prevention of diphtheria, smallpox, typhoid fever, malaria, and hookworm disease, in 43 counties. Staff nurses assisted physicians in giving 2,034 immunizations against smallpox, 4,315 against diphtheria, 2,246 against typhoid fever, and 87 against whooping cough to preschool children.
- Talks and lectures—653.
- Literature distributed—42,654 pieces.
- Graduate courses in obstetrics for physicians were conducted in four of the congressional districts of the State by a physician employed by the United States Children's Bureau. (See p. 116.) The organization work for these courses was done by the division and by the district and county medical societies.
- Nutrition work was done through the organization of 71 nutrition classes.
- Exhibits conducted—151, at county fairs and various local meetings. The "healthmobile," which is equipped with motion-picture machines and health films, exhibited the films in the evenings following health conferences.
- Articles prepared—14, on various child-hygiene topics, besides articles for newspapers.
- Breast feeding was promoted through the literature distributed, through lectures given, and through articles prepared for newspapers.
- Infants born in the State during the year—approximately 57,000; infants under 1 year of age reached by the work of the division—42,035; preschool children reached—15,643; expectant mothers reached—27,941.
- Counties in the State—161; counties in which maternity and infancy work was done during the year—125; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—161.
- At the close of the fiscal year under review 19 counties were prepared to assume the responsibility for maternity and infancy work begun with maternity and infancy funds.
- The following organizations cooperated in the division's work: State medical association, district and county medical societies, women's clubs, chambers of commerce, fraternal and business clubs, and parent-teacher associations. They helped to organize local groups and distributed literature.
- Among the outstanding features of the year's work were the graduate courses in obstetrics arranged for by the division with the cooperation of the district and county medical societies.

### INFANT AND MATERNAL MORTALITY RATES

Georgia was not admitted to the United States birth-registration area until 1928. Mortality rates of earlier years, therefore, are not available for comparison with those of 1928.

In 1928 the general death rate for the State (11.2) was 7 per cent lower than that for the birth-registration area (12). The infant mortality rate (82) was 12 per cent higher than for the area (69). The high rate in the State was due largely to the mortality among colored infants, for whom the rate was 104, as compared with 68 for white infants. These rates are practically the same as those for the birth-registration area for both colored infants (106) and white infants (64).

The maternal mortality rate for the State in 1928 (107) was considerably higher than that for the birth-registration area (69), and the rates for both white mothers (85) and colored mothers (144) were higher than the corresponding rates for the birth-registration area (63 and 121).

## HAWAII

### STAFF AND ACTIVITIES IN 1929

Administrative agency: Territorial board of health, division of maternity and infancy, Honolulu.

Funds expended: Federal, \$12,730.19; Territorial, \$6,725.96; total, \$19,456.15.

Staff:

Director (nurse), 18 nurses (14 part time), 1 stenographer.

Volunteer assistants—26 physicians; 20 lay persons.

Activities:

Child-health conferences conducted by physicians—846; infants and preschool children registered and examined—4,083; visits to conferences—16,444.

Conferences conducted by nurses, no physician present—414; infants and preschool children inspected—1,947; visits to conferences by children—5,864.

New permanent child-health centers—6 established as a result of the division's maternity and infancy work and cooperation received from plantations. Four are supported by the division of maternity and infancy, two by the Territorial board of health and a plantation.

Classes for girls in care of infants and preschool children—2 organized; girls enrolled—48; number completing course—20; lessons in course, 10.

Home visits by nurses—16,337 (prenatal cases seen, 256; infants, 1,502; preschool children, 960).

Talks and lectures—9.

Literature prepared—Infant Feeding; Baby Diet (in Japanese).

Literature distributed—4,003 pieces.

Nutrition work was done through individual instruction given to mothers at conferences and in home visits.

Exhibit material was lent twice.

Breast feeding was stressed in the instruction given to mothers at conferences and in home visits.

Infants born in the Territory during the year—11,498; infants under 1 year of age reached by the work of the division—2,842; preschool children reached—3,190.

The division sends literature on infant hygiene to parents of all infants whose births are registered in the Territorial bureau of vital statistics if the parents are known to be able to read.

Counties in the Territory—5; counties in which maternity and infancy work was done during the year—4. The remaining county is the leper settlement.

Nurses from the division assisted local organizations in conducting child-health conferences.

Two mission organizations cooperated in the division's work, lending rooms in which child-health conferences were conducted.

### INFANT AND MATERNAL MORTALITY RATES

The Territory of Hawaii has not been admitted to the United States birth-registration area, although it has been in the death-registration area since 1917. Figures, therefore, are not available from the United States Bureau of the Census for comparison of infant or maternal mortality rates.



Territorial figures indicate, however, that infant mortality has decreased since the benefits of the maternity and infancy act were extended to the Territory of Hawaii by the Sixty-eighth Congress in 1924 and accepted by the governor in the same year. The division of maternity and infancy, established in 1925, the year in which the Territorial legislature confirmed the governor's acceptance of the provisions of the act, has given assistance in the work to promote the registration of births to the standard required for admission to the birth-registration area.

## IDAHO

### STAFF AND ACTIVITIES IN 1929

Administrative agency. State department of public welfare, bureau of child hygiene, Boise.

Funds expended: Federal, \$7,450.17; State, \$2,496.78; total, \$9,946.95.

#### Staff:

Director (physician, part year), 4 nurses (3 part year), 1 stenographer.

Two county nurses were paid in part from maternity and infancy funds.

Volunteer assistants—28 physicians, 315 nurses and lay persons.

#### Activities:

Child-health conferences conducted by physicians—68; infants and preschool children registered and examined—2,447.

Defects found in children examined at conferences—1,466; children having defects—1,196.

Conferences conducted by nurses, no physician present—30; infants and preschool children inspected—988; mothers instructed in prenatal care—436; visits to conferences by mothers—824.

New permanent child-health centers—2 established as an indirect result of the bureau's maternity and infancy work. They are supported by Federal and county funds and the Rockefeller Foundation.

Classes for mothers—18 organized; mothers enrolled—188; lessons in course—4. Classes were still in progress at the close of the year under review.

Home visits by nurses—128.

Campaign—1, for examination of preschool children and correction of their defects before the children should enter school.

Talks and lectures—10.

Literature prepared—Mother's Manual.

Literature distributed—23,968 pieces.

New names registered for prenatal letters—355; prenatal letters distributed—355 sets.

Nutrition work was done through instruction given to mothers at health conferences and in the classes for mothers.

Exhibits conducted—68, of layettes, posture posters, and proper food for children. Exhibit material prepared—chart of maternal and infant deaths, by counties.

Statistical study made—deaths of children to 7 years of age, by causes, for the period 1922 to 1927.

Breast feeding was stressed in the instruction given to mothers at conferences and in classes.

Infants born in the State during the year—9,185; infants under 1 year of age reached by the work of the bureau—12,511; preschool children reached—13,904; expectant mothers reached—approximately 1,000.

The bureau sends a list of available literature on infant hygiene to parents of all infants whose births are registered in the State bureau of vital statistics.

Counties in the State—44; counties in which maternity and infancy work was done during the year—42; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—44.

The work of the bureau has been one of the factors leading to the establishment of seven full-time and six part-time county nursing services. Supervisory assistance was given to some local activities for the promotion of child health.

## Activities—Continued.

The following organizations cooperated in the bureau's work: State medical society, American Red Cross, State federation of women's clubs, Joint Legislative Council of Women, a church relief society, and the parent-teacher association. They gave advisory assistance and helped at health conferences. Among the children examined at health conferences reported in the foregoing paragraphs were 347 examined in the "Get ready for school" campaign sponsored by the National Congress of Parents and Teachers.

Among the outstanding features of the year's work were the organization of two new county health units and the organization of classes for mothers in rural communities.

## INFANT AND MATERNAL MORTALITY RATES

Idaho was not admitted to the United States birth-registration area until 1926. Mortality rates of earlier years, therefore, are not available for comparison with those of 1928.

In 1928 the general death rate for the State (7.7) was low compared with that for the birth-registration area (12), and the infant mortality rate for the State (59) was lower than that for the area (69). The State rates for urban areas (53) and for rural areas (60) were both lower than the corresponding rates for the birth-registration area (69 and 68).

The maternal mortality rate for the State in 1928 (68) was slightly lower than that for the birth-registration area (69). The rate for urban areas in the State was 51 and that for rural areas was 70.

## INDIANA

## STAFF AND ACTIVITIES IN 1929

Administrative agency: State board of health, division of infant and child hygiene, Indianapolis.

Funds expended: Federal, \$33,187.44; State, \$27,585.74; total, \$60,773.18.

## Staff:

Director (physician), 6 physicians (3 part year), 5 nurses (3 part year), 1 vital-statistics clerk, 1 secretary, 3 stenographers, 1 exhibits director, 5 clerks (3 part year).

## Activities:

Child-health conferences conducted by physicians—572; infants and pre-school children registered—13,217; number examined—13,172; visits to conferences—13,229.

Defects found in children examined at conferences—73,702; children having defects—12,578.

Classes for mothers—58 organized; mothers enrolled and completing course—2,398; lessons in course—5.

Group demonstrations—141, on various phases of maternal, infant, and child care.

Campaigns—3: (1) For observance of May Day as Child Health Day, state-wide. (2) For dental hygiene, in 6 counties. (3) For immunization against contagious diseases, in 6 counties.

The ninth annual Child Health Week was conducted at the Winona Lake Chautauqua. The program included the examination of infants and pre-school children, table exhibits, posters, books, and motion pictures. A symposium on factors and agencies affecting child health was held on one afternoon.

Talks and lectures—374.

Discussions of the relation of the health of the beginner in school to the school program were given by the director and other physicians on the staff at many teachers' institutes.

Literature prepared—To Mothers (folder, revised).

Literature distributed—94,577 pieces.

Nutrition work was done through instruction given at classes for mothers and individual instruction to the mothers attending health conferences.

Exhibits conducted—44, at National, State, and local meetings. The ninth annual exhibit was conducted at the State fair in cooperation with the State board of agriculture. Improvements had been made in the babies' buildings, in which this exhibit is held, and new furniture and apparatus

## Activities—Continued.

were added. The usual exhibits of posters, panels, charts, and motion pictures were shown, and demonstrations were made by the nurses throughout each day and evening. Physical examinations and mental tests were made of 1,257 infants and preschool children. The nursery and playground, where parents might leave their children while they visited the fair, were maintained as in previous years. About 67,000 persons visited the exhibit. Exhibit material prepared—sun-bath model, dental model, correct clothing and shoes for children, posters, and maps. Exhibit material was lent nine times.

Articles prepared—Conditions Affecting the Health of Young Children, Radio-Ulnar Olisthy, Indiana Progress in Child Hygiene, Is the Preschool Army Physically Fit? Eyes Have They, Ready for School, Tuberculosis in Infancy and Childhood, The Teeth—Their Growth and Care, Mental Hygiene, Beautiful Feet, The Blue Ribbon Child, and other articles in the monthly bulletin of the State board of health and other publications.

Statistical studies made (based chiefly on records of mothers and children attending conferences)—physical defects, nutrition, relation of diseases of childhood to ear and tonsil defects and of both to nutrition, mental development; prenatal care, breast feeding (a study of 6,764 children showed 70 per cent breast fed 3 months or longer).

Infants born in the State during the year—58,804; infants under 1 year of age reached directly by the work of the division—6,690; preschool children reached—15,232. Many more were reached indirectly through the literature distributed and through contacts with volunteer workers.

Counties in the State—92; counties in which maternity and infancy work was done during the year—86; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—92.

The division gave advisory assistance to local agencies doing maternity and infancy work.

The following organizations cooperated in the division's work: Other divisions of the State board of health, State board of charities and corrections, State board of education (home-economics and attendance departments), State university (extension service), State medical, dental, and tuberculosis associations, State health council, American Red Cross, State child-welfare association, State chamber of commerce, State league of women voters, State federation of women's clubs, American Legion, Purdue University (agricultural extension), Boy Scouts, Girl Scouts, Campfire Girls, Young Men's and Young Women's Christian Associations, the parent-teacher association, other professional and fraternal organizations, schools, and churches.

Among the outstanding features of the year's work were the campaign for observance of May Day as Child Health Day, the lectures given before teachers' institutes, and the securing of a State appropriation sufficient to carry on the bureau's work after the expiration of the Federal maternity and infancy act, June 30, 1929.

## INFANT AND MATERNAL MORTALITY RATES

The general death rate for Indiana in 1928 (12.7) was 7 per cent higher than in 1921 (11.9). The infant mortality rate in 1928, however, was definitely lower than in 1921, as the following table shows:

Area	Deaths of infants under 1 year of age per 1,000 live births		
	1921	1928	Percentage of difference
State.....	71	63	-11
Urban.....	79	67	-15
Rural.....	66	59	-11

These rates would indicate that 8 of every 1,000 infants born alive in 1928 survived who would have died if the 1921 rate had prevailed, a total saving of some 500 infant lives in the State.

The maternal death rate also was lower in 1928 than in 1921, and both urban and rural rates were lower, as the following table shows:

Area	Deaths of mothers from causes associated with pregnancy and childbirth per 10,000 live births		
	1921	1928	Percentage of difference
State.....	69	62	-10
Urban.....	86	81	-6
Rural.....	56	45	-20

A constructive program of education of rural women in the essentials of infant care and hygiene and the hygiene of pregnancy, an especial feature of the work in the State, has covered the rural districts. Its results seem indicated by the lower infant and maternal mortality rates.

## IOWA

### STAFF AND ACTIVITIES IN 1929

Administrative agency: State board of education, division of maternity and infant hygiene, Iowa City.

Funds expended: Federal, \$39,191.07; State, \$18,506.81; total, \$57,697.88.

#### Staff:

Director (director of the extension service of the State university serving), 1 physician, 5 nurses (1 part year), 1 dentist (part year), 1 dental hygienist, 1 social worker, 1 child-welfare specialist, 1 assistant child-welfare specialist, 1 vital-statistics clerk, 3 stenographers.

#### Activities:

Child-health conferences conducted by physicians—187; infants and pre-school children registered and examined—3,927.

Defects found in children examined at conferences—4,524; children having defects—3,340. Reports made by the nurses who followed up the children examined at conferences showed that 45 to 79 per cent of the children having defects had the defects corrected.

Conferences conducted by nurses, no physician present—107; mothers instructed in prenatal care—3,708.

Home visits by nurses—280.

The division assisted in a campaign conducted in one county to have pre-school children examined and their defects corrected before the children should enter school.

Talks and lectures—155.

Literature distributed—108,500 pieces.

Exhibits conducted—110, at State and county fairs. Exhibit material was lent 16 times.

In addition to following up individual children referred to her by the nurses assisting at child-health conferences, the social worker assisted in organizing and supervising county-wide social-welfare agencies on the "Iowa plan," public and private sources of funds for welfare work being coordinated under county welfare leagues. Four new organizations of this type were established during the year.

The two child-welfare specialists on the division's staff organized and supervised parent-education groups, of which there were 387 in the State at the close of the year under review. Their work was done in cooperation with the State university, agricultural college, and normal school in the state-wide parent-education project which was sponsored by the State parent-teacher association. Detailed programs and study material were supplied to the groups mentioned. Package libraries on the care of the

## Activities—Continued.

preschool child were prepared and put into circulation. Through a general conference at Iowa City and institutes at three other centers an effort was made to train leaders for study groups of this character.

Dental-hygiene work was done in cooperation with the oral-hygiene committee of the State dental society. An advisory board consisting of representatives of the dental society and other health agencies was formed to prepare a dental-hygiene program for local communities. Thirty counties adopted the program, the dental work in the communities being done by local dentists. Demonstration programs were conducted in representative communities—a rural district, a small town, a consolidated-school district, and a city of 8,000 inhabitants. Two dental-hygiene institutes were conducted for nurses.

Information on the length of time the baby was breast fed was obtained for 12,332 babies as follows: Almost 8 per cent were never breast fed, 37 per cent were weaned before the ninth month, 14 per cent were weaned either the ninth or the tenth month, and 41 per cent were nursed longer than 10 months.

Infants born in the State during the year—42,231; infants under 1 year of age reached by the work of the division (exclusive of those reached by literature distributed)—2,356; preschool children reached (exclusive of those reached by literature distributed)—1,571; expectant mothers reached (exclusive of those reached by literature distributed)—952.

The division furnishes literature on infant hygiene to the State board of health to send to parents of all infants whose births are registered in the State bureau of vital statistics.

Counties in the State—99; counties in which maternity and infancy work was done during the year—43; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—99.

The following organizations cooperated in the division's work: State dental society, State farm bureau, and the parent-teacher association. Among the children examined at health conferences reported in foregoing paragraphs were 650 examined in the "Get ready for school" campaign sponsored by the National Congress of Parents and Teachers.

## INFANT AND MATERNAL MORTALITY RATES

Iowa was not admitted to the United States birth-registration area until 1924. Mortality rates of earlier years therefore are not available for comparison with those of 1928.

The general death rate for the State in 1928 (10.4) was 6 per cent higher than the rate in 1924 (9.8) and 13 per cent lower than that for the United States birth-registration area in 1928 (12). The infant mortality rate in 1928 (53) was not significantly lower than in 1924 (55) but was 23 per cent lower than that for the birth-registration area in 1928 (69). Iowa's rural infant mortality rate in 1928 (47) was lower than the rate for rural areas in any other State in the birth-registration area. The rate for urban areas was 67.

The maternal mortality rate for the State in 1928 (48) was lower than that for the State in 1924 (60), and it also was lower than that for the birth-registration area (69) and for any other State in the area in 1928. In both urban and rural areas the maternal mortality rates were lower in 1928 (67 and 40) than in 1924 (79 and 52).

Some of the reduction in infant and maternal mortality in the rural areas may reasonably be attributed to the special work done by the division of maternity and infant hygiene with groups of organized farm women throughout the State.

## KANSAS

## STAFF AND ACTIVITIES IN 1929

Administrative agency: State board of health, division of child hygiene, Topeka. Funds expended: Federal, \$22,650; State, \$12,650; total, \$35,300.

## Staff:

Director (physician, part time), 3 nurses (1 part time), 1 vital-statistics clerk, 1 stenographer, 2 clerks. Eight county nurses were paid in part from maternity and infancy funds.

Volunteer assistants—134 physicians, 28 dentists, 157 nurses, 649 lay persons.

## Activities:

Child-health conferences conducted by physicians—176; infants and preschool children registered and examined—4,854. Defects found in children examined at conferences—5,389.

Conferences conducted by nurses, no physician present—4; infants and preschool children inspected—95; mothers instructed in prenatal care—12.

Dental conferences—41; preschool children receiving dental examination—1,042.

Classes in maternal and infant hygiene were conducted in three State teachers' colleges and one vocational school to prepare students to teach the subject to girls in the seventh and eighth grades. The average number of class meetings was 8.

Classes for mothers—approximately 70 group conferences were conducted; 520 mothers also received instruction in infant and child care at the nurses' offices.

Home visits by nurses—1,125 (to prenatal cases, 380; infants and preschool children, 745). (Report incomplete.)

Maternity homes inspected—7; inspections made—11.

Infant homes inspected—62; inspections made—132.

Surveys—2: (1) Of birth registration, state-wide. (2) Of health conditions among mothers and children on an Indian reservation (continued from the previous year). As a result of this survey the United States Office of Indian Affairs arranged to provide the reservation with a nurse and a part-time physician.

Campaign—1, to have preschool children qualify as "nine-pointers" throughout the State. To qualify for this designation the children had to have normal vision, hearing, teeth, throat, posture, and weight, and be vaccinated against smallpox and immunized against typhoid fever and diphtheria.

Talks and lectures—87.

Literature distributed—170,016 pieces.

New names registered for prenatal letters—740; prenatal letters distributed—5,149.

Nutrition work was done through individual instruction given to mothers at child-health conferences.

Exhibits conducted—6. Exhibit material prepared—motion-picture film dealing with the observance of May Day as Child Health Day. Exhibit material was lent 21 times.

Breast feeding was stressed in the instruction given to mothers at child-health conferences.

Infants born in the State during the calendar year 1928—33,860; infants under 1 year of age reached by the work of the division during the fiscal year under review (exclusive of those reached by literature distributed)—10,004; preschool children reached—15,481; expectant mothers reached—1,279.

The division sends literature on infant hygiene to parents of all infants whose births are registered in the State bureau of vital statistics.

Counties in the State—105; counties in which maternity and infancy work was done during the year—101; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—105.

Eight counties were prepared at the close of the fiscal year to assume the responsibility for maternity and infancy work begun with maternity and infancy funds.

The following organizations cooperated in the division's work: State federation of women's clubs, State league of women voters, American Legion auxiliary, and the parent-teacher association. Among the children examined at health conferences reported in the foregoing paragraphs, approximately 1,200 were examined in the "Get ready for school" campaign sponsored by the National Congress of Parents and Teachers.

An outstanding feature of the year's work was the educational effect of the child-health conferences, including also the instruction in prenatal care given to mothers attending these conferences,

## INFANT AND MATERNAL MORTALITY RATES

During the operation of the maternity and infancy act Kansas cooperated twice with the Federal Government. The first period of cooperation was from January, 1922, to September, 1923, under the governor's acceptance of the provisions of the act. (See sec. 4 of the act, Appendix A, p. 127.) Cooperation ceased when the State legislature of 1923 did not provide for continuation. The legislature of 1927 accepted the provisions of the act, and a second period of cooperation began in May, 1927, continuing to the expiration of the act, June 30, 1929. During the first period of cooperation a child-hygiene program received impetus, which later was reduced by limitation of funds and was expanded when Federal funds were again available.

The general death rate for the State was higher in 1928 (11.4) than in 1921 (10.2). The infant mortality rate was lower in 1928 (59), however, than in 1921 (63). Both urban and rural rates were lower in 1928, the urban rate being 73 in 1921 and 69 in 1928, the rural rate being 59 in 1921 and 55 in 1928.

The maternal mortality rates were higher in 1928 than in 1921. The difference is largely due to the increase in the number of deaths caused by "other accidents of labor," the rate from this cause being 3.1 in 1921 and 8.6 in 1928. The 1921 rate from this cause, however, is lower than that of any succeeding year. There has been considerable fluctuation in the rates from all causes, the rate of 1924 being the lowest for urban areas and that of 1927 the lowest for rural areas.

## KENTUCKY

## STAFF AND ACTIVITIES IN 1929

Administrative agency: State board of health, bureau of maternal and child health, Louisville.

Funds expended: Federal, \$26,298.64; State, \$21,298.64; total, \$47,597.28.

## Staff:

Director (physician), 2 physicians (1 part time), 5 nurses (1 part time, 1 part year), 1 nutritionist, 1 clinical instructor (part year), 2 clinical assistants (1 part year), 1 milk inspector (part year), 1 educational instructor (part year), 1 bookkeeper (part time), 2 stenographers (1 part year), 13 clerks (9 part year). One county nurse was paid in part from maternity and infancy funds. Additional medical, nursing, and clerical assistants were employed for short periods as needed.

## Activities:

Combined prenatal and child-health conferences conducted by physicians—36; expectant mothers registered—158; infants and preschool children registered and examined—982.

Child-health conferences conducted by physicians—120; infants and preschool children registered and examined—3,276.

Defects found in children examined at conferences—3,147; children having defects—2,387. The percentage of children with physical defects has noticeably declined. Eighty per cent of the children examined at conferences during the previous fiscal year were found to have physical defects, whereas only 56 per cent of those examined during the year under review had defects.

New permanent child-health centers—9 established as a result of the bureau's maternity and infancy work. They are supported by local and State funds, the United States Public Health Service, and the International Health Division of the Rockefeller Foundation.

Classes for midwives—10 organized; midwives enrolled and completing course—70; all-day classes in course—2. When the bureau began its work, about 3,500 midwives were practicing in the State. The number has been reduced to 2,474, and only 858 midwives deliver as many as 5 babies a year.

The bureau cooperated in a study of maternal mortality (continued from the previous year) made in the State by the United States Children's Bureau with the indorsement of the State board of health and the State medical society.

Campaigns—2: (1) For immunization against diphtheria, state-wide. (2) To have children qualify as "blue-ribbon" children by being free from defects in eyes, ears, nose, throat, and posture and being of normal weight. Nearly 25,000 infants and preschool children reached these standards.

## Activities—Continued.

Talks and lectures—809.

Literature distributed—365,500 pieces.

New names registered for prenatal letters—619; prenatal letters distributed—1,913 sets.

Nutrition work was done through lectures to physicians, women's clubs, men's clubs, and groups of children, through the distribution of literature, and through talks with individual mothers at child-health conferences. The nutritionist gave advisory assistance to local nurses and to teachers of home economics.

An intensive study of pellagra was made in one county, and clinics for mothers and children were held in two towns and six mining camps where the disease was prevalent. Those attending the clinics were given instruction as to the diet requirements for curing as well as preventing the disease.

Exhibits conducted—70, consisting of a nutrition exhibit, posters, and literature. Exhibit material was lent 70 times.

Other bureaus and a division in the State board of health, some work of which was financed from maternity and infancy funds, carried on the following maternity and infancy activities: (1) The division of health education emphasized the importance of examination of infants and preschool children and correction of physical defects. (2) The bureau of epidemiology made efforts to interest parents in having their children vaccinated against smallpox and immunized against diphtheria, scarlet fever, and typhoid fever. It investigated and controlled two severe epidemics of scarlet fever and one outbreak of puerperal sepsis in a hospital. (3) The bureau of public-health nursing reported much maternal and infant hygiene work done by county and other local nurses who were not paid from maternity and infancy funds but whose maternal and child-health programs were arranged and directed by the bureau of maternal and child health. They assisted in organizing and conducting 222 child-health conferences (exclusive of those conducted in Fayette and Jefferson Counties); made 4,769 visits to infants and preschool children and 885 to expectant mothers, distributed literature supplied by the bureau, and assisted in the campaign for "blue-ribbon" children. Almost all the county nurses were planning county-wide intensive child-health programs for the summer. (4) The bureau of vital statistics reported that inspectors of birth registration made more than 800 visits to local registrars, physicians, and midwives in the effort to promote more complete registration of births. (5) The bureau of sanitary engineering reported the inspection of milk supplies in 33 towns and of water supplies in 95 towns.

Infants under 1 year of age reached by the work of the bureau (exclusive of those reached by literature distributed)—2,152; preschool children reached (exclusive of those reached by literature distributed)—6,000; expectant mothers reached (exclusive of those reached by literature distributed)—2,071.

Counties in the State—120; counties in which maternity and infancy work was done during the year—50; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—120.

Since the beginning of the State's cooperation under the maternity and infancy act 16 counties have assumed the responsibility for maternity and infancy work begun with maternity and infancy funds.

The bureau gave advisory assistance to full-time health units, county nurses, industrial nurses in mining camps, and nurses in church settlements who were doing maternity and infancy work and also furnished literature to them.

The following organizations cooperated in the bureau's work: State medical and dental associations, State federation of women's clubs, and the parent-teacher association. They published educative and informative material in their journals, assisted with work in local committees, and helped in the campaign to raise funds by private subscription to continue the bureau of maternal and child health after the expiration of the State appropriation and the termination of the Federal maternity and infancy act.

The outstanding feature of the year's work was the campaign for "blue-ribbon" standards of health among infants and preschool children.



## INFANT AND MATERNAL MORTALITY RATES

The general death rate for Kentucky in 1928 (11.9) was 13 per cent higher than in 1921 (10.5). The infant mortality rate also was higher in 1928 than in 1921, as the following figures show:

	1921	1928
State.....	62	70
Urban.....	72	77
Rural.....	60	68
White.....	58	66
Colored.....	110	118

The 1921 infant mortality rates were low; in only one year (1927) since the State's admission to the birth-registration area in 1917 were the rates as low as in 1921. The increase in 1928 was due primarily to deaths from respiratory diseases, the rate from these causes in 1928 (11.8) being 87 per cent higher than in 1921 (6.3). The 1928 rates from influenza, bronchopneumonia, and pneumonia were all more than 50 per cent higher than the corresponding rates in 1921. Of the other principal causes of infant deaths the rate for the natal and prenatal group was slightly higher in 1928 than in 1921, whereas the rates for gastrointestinal and communicable diseases were lower. As in other Southern States, the rate for the State is affected by the high rate for colored infants. The rate for white infants in the State (66) was only slightly higher than that for white infants in the birth-registration area (64), whereas the rate for colored infants in the State (118) was 11 per cent higher than that in the birth-registration area (106).

The maternal mortality rate in 1928 was lower than the 1921 rate for the State as a whole, for both white and colored mothers, and for both rural and urban areas, as the following figures show:

	1921	1928
State.....	63	60
Urban .....	93	78
Rural .....	57	55
White.....	57	55
Colored.....	148	125

The rate for the State was higher in 1928, however, than in 1927, when it was 49, the lowest in any year since Kentucky was admitted to the United States birth-registration area.

## LOUISIANA

## STAFF AND ACTIVITIES IN 1929

Administrative agency: State department of health, bureau of child hygiene, New Orleans.

Funds expended: Federal, \$12,521; State, \$2,521; total, \$15,042.

## Staff:

Director, 2 physicians (1 part time, 1 part year), 5 nurses (4 part year), 1 dentist (part year), 2 stenographers (1 for 1 month), 1 accountant (part time), 1 motion-picture operator. Additional physicians were employed for conference work as needed.

## Activities:

Child-health conferences conducted by physicians—132; infants and pre-school children registered and examined—2,692; visits to conferences—3,133.

Defects found in children examined at conferences—6,073; children having defects—2,574. Parents had defects corrected in 254 of the children.

Conferences conducted by nurses, no physician present—33; infants and pre-school children inspected—1,889; mothers instructed in prenatal care—18; visits to conferences by children—1,992; visits by mothers—59.

Dental conferences—23; pre-school children receiving dental examination—2,487.

## Activities—Continued.

Classes for girls in care of infants and preschool children—24 organized; girls enrolled—678; lessons in course—30. Because the field force was limited these classes could not be completed before the end of the year under review. In some parishes<sup>3</sup> the classes were continued by nurses of the local health unit; in others they were continued by home demonstration agents.

Class for mothers—1 organized; mothers enrolled (plus those carried over from the previous year) and completing course—78; lessons in course—3.

Classes for midwives—26 organized; midwives enrolled (plus those carried over from the previous year)—878; number completing course—146; lessons in course—6. In the parishes having parish health units the public-health nurses took charge of the classes after they were organized, and about 200 additional midwives completed the course in those classes.

Home visits by nurses—914 (prenatal cases seen, 128; postnatal cases, 2; infants, 60; preschool children, 270); midwives visited—454.

Community demonstrations—5, of midwife educational work, in 5 parishes.

Group demonstrations—244, on phases of infant and maternal care, to groups of midwives, little mothers' clubs, and other groups.

Survey—1, of midwives, in 5 parishes.

Campaign—1, for examination of preschool children and correction of their defects before the children should enter school, state-wide.

Talks and lectures—159.

Literature prepared—physical standards for children 1, 2, 4, and 6 years of age (leaflets).

Literature distributed—33,766 pieces.

New names registered for prenatal letters—322; prenatal letters distributed—322.

Exhibits conducted—5; 3 were at parish fairs, 1 was a permanent exhibit in the International Trade Exposition building in New Orleans (continued from 1927), and 1 was in the health car of the State department of health, which toured the State. Exhibit material prepared—posters. Exhibit material was lent 29 times.

Breast feeding was stressed in the instruction given to midwives and to mothers at conferences, also in the literature distributed and motion pictures shown.

Infants born in the State during the year—41,677; infants under 1 year of age reached by the work of the bureau—1,054; preschool children reached—9,604; expectant mothers reached—2,183.

Literature on infant care is sent to mothers whose names are filled in on birth-registration blanks as being mothers of first-born children.

Parishes in the State—64; parishes in which maternity and infancy work was done during the year—22; parishes in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—62.

Since the beginning of the State's cooperation under the maternity and infancy act 31 parishes have assumed the responsibility for maternity and infancy work begun with maternity and infancy funds.

As a result of the bureau's work many classes for girls in infant and child care were begun or continued by parish health units, and a dental program was inaugurated in the schools of one parish.

The following organizations cooperated in the bureau's work: State tuberculosis and public-health association, State federation of women's clubs, business and professional women's clubs, New Orleans Needlework Guild, community clubs, and parent-teacher associations. Among the children examined at health conferences reported in the foregoing paragraphs were 142 examined in the "Get ready for school" campaign sponsored by the National Congress of Parents and Teachers.

Among the outstanding features of the year's work were the interest in better standards of midwifery aroused among midwives and the increasing demand for dental work among preschool children and expectant mothers.

<sup>3</sup> In Louisiana the parish is the civil division corresponding to the county in other States.

## INFANT AND MATERNAL MORTALITY RATES

Louisiana was not admitted to the United States birth-registration area until 1927. Mortality rates of earlier years therefore are not available for comparison with those of 1928.

In both 1927 and 1928 the general death rate was higher for the State than for the birth-registration area. The 1927 State rate (12.3) was 8 per cent higher than that for the area (11.4), and the 1928 rate (12.8) was 7 per cent higher than that for the area (12).

The infant mortality rate in both years was also higher than that of the birth-registration area. In 1927 the State rate was 77 as compared with 65 for the area, and in 1928 it was 78 for the State as compared with 69 for the area. These higher rates are due to the mortality rate for colored infants, the 1928 rate for white infants being 64, whereas that for colored infants was 102. The rate for urban areas in the State in 1928 was 83, and that for rural areas was 76.

The maternal mortality rate for the State in 1928, also the rates for urban and rural areas and for white and colored mothers, were higher than those for the birth-registration area, as the following figures show:

	Louisiana	Area
Total.....	114	69
Urban.....	162	78
Rural.....	92	62
White.....	90	63
Colored.....	154	121

## MAINE

## STAFF AND ACTIVITIES IN 1929

Administrative agency: State department of health, division of public-health nursing and child hygiene, Augusta.

Funds expended: Federal, \$19,999.48; State, \$10,000; total, \$29,999.48.

## Staff:

Director (nurse, not paid from maternity and infancy funds), 12 nurses (5 part year), 1 nutritionist, 1 stenographer, 1 clerk.

Volunteer assistants—14 physicians, 11 lay persons.

## Activities:

Child-health conferences conducted by physicians—184; infants and preschool children registered and examined—1,458; visits to conferences—2,153.

Defects found in children examined at conferences—1,740; children having defects—1,160. Parents had defects corrected in 207 of the children (report incomplete).

Conferences conducted by nurses, no physicians present—41; infants and preschool children inspected—143; visits to conferences by children—281.

Dental conferences—2; preschool children receiving dental examination—31.

Classes for girls in care of infants and preschool children—35 organized; girls enrolled—544; number completing course—406; lessons in course—12.

Classes for mothers—7 organized; mothers enrolled (plus those carried over from the previous year)—216; number completing course—74; lessons in course—6. Each lesson was complete in itself, and many mothers attended only 1 or 2 lessons.

Home visits by nurses—14,662 (prenatal cases seen, 570; obstetrical cases, 8; postnatal cases, 260; infants, 1,416; preschool children, 3,339).

Group demonstrations—268, to classes and group meetings.

Campaign—1, for observance of May Day as Child Health Day. Nearly all State and local organizations gave some recognition to the day, and special activities were reported by 133 towns.

Talks and lectures—182 (3 by radio).

Literature prepared—Nutrition Helps (leaflet).

Literature distributed—71,602 pieces.

New names registered for prenatal letters—1,607; prenatal letters distributed—1,643 sets.

## Activities—Continued.

Nutrition classes—37 conducted; persons enrolled—354; lessons in course—5. Individual instruction was given to 575 children at conferences; 80 homes were visited and instruction was given regarding the diet of 250 children; 17 talks on nutrition were given to groups of children; and 15 talks were given to the classes in infant care.

Exhibits conducted—135. Exhibit material prepared—models, posters, charts, and maps. Exhibit material was lent 65 times.

Breast feeding was stressed in the instruction given to mothers at conferences and in home visits.

Infants born in the State during the year—16,432; infants under 1 year of age reached by the work of the division—3,844; preschool children reached—9,133; expectant mothers reached—2,213.

The division sends a list of literature on infant hygiene, copies of which may be had on request, to parents of all infants whose births are registered in the State bureau of vital statistics.

Counties in the State—16; counties in which maternity and infancy work was done during the year—11; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—15.

As a result of the division's work many local and county nurses conducted classes in infant care. At the completion of the course the division issued diplomas to girls receiving a grade of 70 or higher.

The Maine Public Health Association and the American Red Cross co-operated in the division's work.

An outstanding achievement of the year's work was the increase in general public interest in the work of the division and the increased interest and participation on the part of professional workers in the field of maternal, infant, and child hygiene.

## INFANT AND MATERNAL MORTALITY RATES

Maine did not begin cooperation with the Federal Government under the maternity and infancy act until 1927, although an increased appropriation for child-hygiene work was granted by the State legislature in 1922. In both 1921 and 1928 the general death rate was higher for the State than for the birth-registration area (14 and 13.8 for the State as compared with 11.7 and 12 for the area).

The infant mortality rate was also higher in both 1921 and 1928 for the State than for the birth-registration area (88 for the State in 1921 as compared with 76 for the area, and 73 for the State in 1928 as compared with 69 for the area). The rate for urban areas of the State was slightly higher (4 per cent) in 1928 (82) than in 1921 (79). The rate for rural areas was lower in 1928 (77) than in 1921 (92). The rate for 1928 was, however, the lowest recorded for the State since the United States birth-registration area was established in 1915.

The maternal death rate for the State was the same in 1921 and 1928 (74), although there was considerable fluctuation during the period. The rate for urban areas was also the same in 1921 and 1928 (101), and there was very little difference in the rates for the rural areas (63 in 1921 and 62 in 1928).

## MARYLAND

## STAFF AND ACTIVITIES IN 1929

Administrative agency: State department of health, bureau of child hygiene, Baltimore.

Funds expended: Federal, \$25,706.27; State, \$14,277; total, \$39,983.27.

## Staff:

Director (physician), 1 midwife teacher (part year), 1 health-education worker (part time), 2 stenographers, 2 clerks (1 part year). Forty-five physicians and four dentists were employed as needed to conduct conferences. Twenty-one county nurses were paid in part from maternity and infancy funds.

Volunteer assistants—10 physicians, 2 dentists, 85 lay persons.

## Activities:

- Child-health conferences conducted by physicians—456; infants and preschool children registered and examined—7,199.
- Defects found in children examined at conferences—9,648; children having defects—6,065. Parents had defects corrected in approximately 1,000 of the children.
- Prenatal conferences conducted by physicians—12; expectant mothers registered and examined—32; visits to conferences—69.
- Conferences conducted by nurses, no physician present—57; infants and preschool children inspected—498; mothers instructed in prenatal care—65; visits to conferences by children—538; visits by mothers—306.
- Dental conferences—61; preschool children receiving dental examination—570.
- Plans were made for the establishment after the close of the fiscal year of a new health center in addition to the 35 centers already operating in the counties.
- Classes for girls in care of infants and preschool children—17 organized; girls enrolled and completing course—380; lessons in course—10.
- Classes for mothers—32 organized; mothers enrolled and completing course—433; lessons in course—8.
- Classes for midwives—18 organized; midwives enrolled—206; number completing course—186; lessons in course—8. Quarterly letters on some important phase of their work were sent to licensed midwives.
- Home visits by nurses—7,289 (prenatal cases seen, 1,307; postnatal cases, 651; infants, 3,772; preschool children, 3,149).
- Group demonstrations—51, at conferences and meetings. Films and slides on child health were shown and proper clothing and food were exhibited.
- Survey—1, of preschool children who would enter school in the fall.
- The bureau cooperated with the United States Children's Bureau in a study of maternal mortality (continued from the previous year) made in the State with the indorsement of the State medical society.
- The bureau cooperated in a state-wide campaign for the observance of May Day as Child Health Day, one feature of which was the examination of preschool children so as to obtain correction of their defects before the children should enter school.
- Talks and lectures—81.
- Literature prepared—Guarding the Baby, Diagnosis of Dysentery, Why Prenatal Care?
- Literature distributed—approximately 125,000 pieces.
- Nutrition work was done through several nutrition classes conducted by the county nurses who were paid from maternity and infancy funds.
- Exhibits conducted—56, of posters, films, clothing for the baby, and dental exhibits. Exhibit material was lent 40 times.
- Articles prepared—Pneumonia in Young Children, Nature and Nurture in Child Hygiene, Better Health for Mothers and Babies, Child Health in Scandinavia.
- Statistical studies made—physical condition of children examined at health conferences according to age groups (infancy to 5 years of age and 5 to 7 years of age); infant mortality from certain causes in the counties of Maryland before and after the State was admitted to the United States birth-registration area, also in 1921 and 1927; infant mortality in the counties of Maryland, by causes and age groups (in this study it was ascertained that of the total 1,237 deaths of infants under 1 year of age 819 were of infants less than 1 month old); infant deaths, infant mortality rates, neonatal deaths, and stillbirths in the counties, by years from 1924 to 1928; cases of ophthalmia neonatorum, by counties and in Baltimore city, by years from 1919 to 1929; maternal mortality in the counties for the first nine months of 1928, by causes and age groups; attendant at birth (white and colored separately) for births occurring in the State as a whole, for the counties as compared to Baltimore city, and for each county separately.
- Breast feeding was stressed in the instruction given to mothers at conferences and in home visits and in films shown.

## Activities—Continued.

Infants born in the State during the year—15,437 (exclusive of those born in Baltimore city, in which the State bureau of child hygiene does no work because the city has its own bureau of child hygiene); infants under 1 year of age reached by the work of the bureau—approximately 15,000; preschool children reached—approximately 5,500; expectant mothers reached—approximately 7,500.

The bureau sends literature on infant hygiene to parents of all infants whose births are registered in the State bureau of vital statistics.

Counties in the State—23; counties in which maternity and infancy work was done during the year—23.

Except for the services of physicians from the bureau's staff, seven counties have assumed the responsibility for maternity and infancy work begun with maternity and infancy funds.

As a result of the bureau's work, health conferences and dental and orthopedic clinics for preschool children have been conducted in a number of counties.

The following organizations cooperated in the bureau's work: State public-health association, American Red Cross, State federation of women's clubs, State league of women voters, service clubs, and parent-teacher associations. They assisted in arranging for and conducting health conferences, furnished transportation for children, and distributed a large number of pamphlets on prenatal care to expectant mothers.

Among the outstanding features of the year's work were the extension of the examinations of preschool children and the resulting correction of their defects, the classes for midwives, and the increased interest in prenatal care and appreciation of its importance.

## INFANT AND MATERNAL MORTALITY RATES

The general death rate for Maryland in 1928 (13.4) was practically the same as in 1921 (13.6). The infant mortality rate in 1928 (80), however, was much lower than in 1921 (94). In 1921, 1 infant in every 11 born alive died before reaching the first birthday; in 1928, 1 in every 13 died during the first year of life. This difference was particularly noticeable in the rural areas of the State, the rate in 1921 being 102, which meant that 1 infant in every 10 died under 1 year of age, whereas in 1928, when the rate was 77, there was a loss of 1 in every 13.

The high rates for the State in 1921 and 1928 were due to a large extent to the mortality among colored infants. In 1921 the rate for colored infants was 147 compared with 81 for white infants, and in 1928 it was 128 for colored infants compared with 67 for white infants.

The 1928 infant mortality rate for the State and for white infants was the lowest since the State's admission to the birth-registration area in 1916. The rate for colored infants was lower in 1928 than in any other year except 1924, when it was the same. The rate for rural areas in 1928 (77) was the lowest recorded; for urban areas the lowest rate (81) occurred in 1927, the 1928 rate being 1 point higher.

The maternal mortality rate was slightly lower in 1928 (65) than in 1921 (67). The lowest rate since the State entered the United States birth-registration area occurred in 1927 (58). The rate for rural areas was 11 per cent lower in 1928 (56) than in 1921 (63). The urban rate was 3 per cent higher in 1928 (72) than in 1921 (70). The greatest differences in the maternal mortality rates for the State were those from puerperal hemorrhage and puerperal albuminuria and convulsions. The rate from puerperal hemorrhage was 16 per cent lower in 1928 (7.5) than in 1921 (8.9); the rate from albuminuria and convulsions was 14 per cent lower in 1928 (16.7) than in 1921 (19.5).

## MICHIGAN

## STAFF AND ACTIVITIES IN 1929

Administrative agency: State department of health, bureau of child hygiene and public-health nursing, Lansing.

Funds expended: Federal, \$38,395.86; State, \$30,877.19; total, \$69,273.05.

## Staff:

Director (physician), 2 physicians, 10 nurses (1 part year), 2 vital-statistics clerks, 2 stenographers, 1 clerk, 1 mail clerk (part time). Three county nurses were paid from maternity and infancy funds (2 part year).

Activities:

- Child-health conferences conducted by physicians—14; infants and preschool children registered and examined—987.  
 Defects found in children examined at conferences—2,375; children having defects—950.  
 Prenatal conferences conducted by physicians—60; expectant mothers registered—162.  
 Conferences conducted by nurses, no physician present—30; infants and preschool children inspected—100; mothers instructed in prenatal care—250; visits to conferences by children—200; visits by mothers—400.  
 Classes for girls in care of infants and preschool children—192 organized; girls enrolled—3,974; number completing course—3,924; lessons in course—10.  
 Self-directed study clubs—70 meetings held, with a total attendance of 1,270 women. The purpose of these clubs was to help women to inform themselves in the fundamentals of prenatal, infant, and child care. They were organized by a staff nurse and conducted by leaders selected from among the local groups. Literature for use in the course was furnished by the bureau.  
 Classes for women—162 organized; women enrolled (plus those carried over from the previous year)—2,759 (including 95 midwives); number completing course—2,750; lessons in course—6; in rural districts the 6 lessons were combined in three 2-hour classes.  
 Home visits by nurses—12,647 (prenatal cases seen, 1,450; postnatal cases, 200; infants, 3,371; preschool children, 1,416).  
 Community demonstrations—11, in 11 counties, of a prenatal-nursing program. Lists of expectant mothers were obtained from physicians and other interested persons. Calls were made on these women, and the hygiene of pregnancy was explained and the importance of regular medical supervision stressed. During the year 1,450 women received calls from the nurses in charge. A total of 4,499 such calls were made (2,991 prenatal, 1,508 postnatal).  
 Group demonstrations—1,845, of obstetrical kit, layette, abdominal binder, baby's bed, preparation of bottle feeding, preparation of patient and of bed for home delivery, and inspection of preschool children.  
 Surveys—3: (1) Of midwives, in 30 counties. (2) Of hospitals, state-wide. (3) Of maternal mortality (continued from the previous year), in cooperation with the United States Children's Bureau and with the indorsement of the State medical society. The causes of death for the 1,568 deaths studied by the close of the year under review were as follows:

	Number of deaths
Total.....	1, 568
Puerperal septicemia.....	661
Puerperal albuminuria and convulsions.....	336
Puerperal hemorrhage.....	163
Accidents of pregnancy.....	159
Accidents of labor.....	130
Embolus, sudden death, etc.....	105
Causes following childbirth (not otherwise specified).....	14

- Campaigns—2: (1) For promotion of breast feeding, in 13 counties. In 4 of the counties the campaign was still under way at the close of the year under review. In the 9 completed counties calls were made on 1,688 mothers of young infants. The need of instruction in the importance of breast feeding is indicated by the fact that 119 infants in the group surveyed had never been breast fed and 217 were breast fed less than 1 month. (2) For immunization of preschool children against diphtheria, in 3 counties. The bureau cooperated in the campaign to have preschool children examined and their defects corrected before the children should enter school and in the campaign for the observance of May Day as Child Health Day, the director serving as chairman of the State May Day committee.  
 Talks and lectures—314, to audiences totaling 9,319 persons.  
 Literature distributed—171,213 pieces.  
 New names registered for prenatal letters—3,229; prenatal letters distributed—3,943 sets.

## Activities—Continued.

Nutrition work was done through the instruction given in the classes for women and for girls.

Exhibits conducted—13, at fairs and at various National, State, and local meetings. Exhibit material prepared—charts, graphs, maps, posters, and pictures. Exhibit material was lent 33 times.

Article prepared—report on the maternal-mortality study mentioned in a foregoing paragraph.

Breast feeding was promoted by the breast-feeding campaigns, the instruction given in classes for mothers and girls, and the literature distributed.

Infants born in the State during the year—97,462; infants under 1 year of age reached by the work of the bureau—125,000; preschool children reached—25,000; expectant mothers reached—18,000.

The bureau sends literature on infant hygiene to parents of all infants whose births are registered in the State bureau of vital statistics.

Counties in the State—83; counties in which maternity and infancy work was done during the year—81; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—83.

Since the beginning of the State's cooperation under the maternity and infancy act four counties have assumed the responsibility for maternity and infancy work begun with maternity and infancy funds.

As a result of the bureau's work, 79 classes for girls in infant hygiene, in which 1,647 girls were enrolled, were organized by nurses not on the bureau's staff and 4,019 home visits were made by them. Local communities conducted a number of health centers, to which 32,947 visits were made by infants and preschool children and 2,181 visits were made by expectant mothers.

The following organizations cooperated in the bureau's work: State department of public instruction, State agricultural college (extension division), American Red Cross, State league of women voters, State federation of women's clubs, State nurses' association, women's auxiliary of the State medical society, Daughters of the American Revolution, American Association of University Women, Woman's Christian Temperance Union, Michigan Child Study Association, Legislative Council of Michigan Women, State grange, American Legion auxiliary, women's fraternal organizations, and the parent-teacher association. Among the children examined at health conferences reported in the foregoing paragraphs 500 were examined in the "Get ready for school" campaign sponsored by the National Congress of Parents and Teachers. They assisted in the campaign for the observance of May Day as Child Health Day and in the campaign to secure an appropriation to carry on the bureau's maternity and infancy work after the expiration of the Federal maternity and infancy act.

The outstanding achievement of the year was the securing of a State appropriation equal to the combined State and Federal funds allotted to the bureau under the Federal maternity and infancy act which expired June 30, 1929.

## INFANT AND MATERNAL MORTALITY RATES

The general death rate for Michigan was 11.9 in 1928 and 11.6 in 1921. The infant mortality rate for the State was considerably lower in 1928 than in 1921, as the following table shows:

Area	Deaths of infants under 1 year of age per 1,000 live births		
	1921	1928	Percentage of difference
State.....	79	69	-13
Urban.....	81	74	-9
Rural.....	75	62	-17

These lower rates resulted in the saving of more than 900 infants in the State who would have died during the first year of life if the 1921 rate had prevailed. In urban areas more than 400 and in rural areas almost 600 survived their first



year who would have died if the conditions existing in 1921 had prevailed. The lower rate for the State in 1928 as compared with 1921 was due largely to the fewer deaths from gastrointestinal diseases, which more than any other cause are influenced by proper care of the baby. The mortality rate from these diseases in 1928 was 7.5, a reduction of more than 50 per cent from the rate in 1921 (15.1). Throughout the period 1921 to 1928 there was, with some fluctuation, a decline in the infant mortality rate from these causes. The rate from natal and prenatal causes was 11 per cent lower in 1928 than in 1921, the trend having been downward during the period. Respiratory diseases, on the contrary, caused an increasing number of infant deaths, the rate being 39 per cent higher in 1928 (13.3) than in 1921 (9.6).

The maternal mortality rate was lower in 1928 than in 1921, the decrease being confined, however, to rural areas, as the following table shows:

Area	Deaths of mothers from causes associated with pregnancy and childbirth per 10,000 live births		
	1921	1928	Percentage of difference
State.....	69	66	-4
Urban.....	71	78	+10
Rural.....	65	48	-26

This would indicate that 17 fewer mothers in rural areas of the State died from puerperal causes for every 10,000 live births in 1928 than died in 1921; in urban areas 7 more died from such causes for every 10,000 live births.

The improvement in infant and maternal mortality in rural areas undoubtedly was due in large part to the attention attracted to the health of mothers and babies through the surveys made, the special instruction given to groups, and the prenatal nursing services instituted in a number of counties.

## MINNESOTA

### STAFF AND ACTIVITIES IN 1929

Administrative agency: State department of health, division of child hygiene, Minneapolis.

Funds expended: Federal, \$37,435.43; State, \$21,000; total, \$58,435.43.

#### Staff:

Director (physician, part time), 1 physician (part time), 10 nurses (1 for 2 months), 1 vital-statistics field agent, 2 vital-statistics clerks, 4 stenographers, 3 clerks (2 part time).

#### Activities:

Combined prenatal and child-health conference conducted by physicians—1; expectant mothers registered and examined—8; infants and preschool children registered and examined—18.

Child-health conferences conducted by physicians—14; infants and preschool children registered and examined—396.

Certificates were issued to 1,015 girls completing the work in classes in the care of infants and preschool children, the course for which was prepared by the division, the classes being taught by nurses and teachers not on the division's staff.

Classes for mothers—25 organized; mothers enrolled (plus those carried over from the previous year)—611; number completing course—149; lessons in course—8.

Courses for teachers on methods of teaching classes for girls in infant and child care were conducted at a number of the State teachers' colleges. Two lectures on maternity and infancy work were given to each new group of public-health nurses at the University of Minnesota and to senior hospital nurses in St. Paul and Minneapolis. One lecture, with exhibit of the division's material, was given to each class of students in the university medical school.

## Activities—Continued.

Home visits by nurses—3,585 (to prenatal cases, 82; obstetrical cases, 20; postnatal cases, 87; infants, 494; preschool children, 448; other, 2,454).

Group demonstrations—18, on prenatal care and infant clothing and feeding, to classes of university students, dispensary nurses, and groups of women.

Surveys—2: (1) Of maternal mortality (continued from the previous year), in cooperation with the United States Children's Bureau and with the indorsement of the State medical society. (2) Of public-health nursing. It was found that 33 infant-hygiene nurses were working in the State in addition to those employed by the division.

Campaign—1, for the observance of May Day as Child Health Day, statewide.

Talks and lectures—93.

Literature prepared—What the Child-Hygiene Division Is and Does.

Literature distributed—251,202 pieces.

New names registered for prenatal letters—1,127; prenatal letters distributed—3,154 sets.

A correspondence course consisting of 15 lessons was conducted for mothers as in previous years. During the year under review 660 women registered for the course and 348 were on the roll from the previous year. The number completing the course was 268.

Exhibits conducted—6, at the State fair, meeting of the State medical association, and other meetings. Exhibit material prepared—charts and graphs showing statistics of maternal, infant, and public-health nursing and of mortality rates. Exhibit material was lent 46 times.

Articles prepared—5, on various subjects relating to the division's work.

Breast feeding was stressed in the literature distributed.

Expectant mothers reached by the work of the division—1,217.

Counties in the State—87; counties in which maternity and infancy work was done during the year—62; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—87.

Since the beginning of the State's cooperation under the maternity and infancy act two counties have assumed the responsibility for maternity and infancy work begun with maternity and infancy funds.

Nearly all the public-health nurses in the State conducted classes in maternal or infant hygiene during the year under review. They also referred all prenatal cases coming to their attention to the division for prenatal letters or literature.

As a result of the division's work among the Indians the United States Office of Indian Affairs agreed to duplicate the number of Indian nurses placed by the State department of health and to have that department supervise the work of all the Indian nurses.

The following organizations cooperated in the division's work: State department of education, State board of control, State university (extension division), American Red Cross, State league of women voters, State federation of women's clubs, American Legion auxiliary, and the parent-teacher association.

Among the outstanding features of the year's work was the closer contact established with public-health nurses in the State through advisory visits, which resulted in an increase in the distribution of literature and in the general work of the division.

#### INFANT AND MATERNAL MORTALITY RATES

The general death rate for Minnesota was practically the same in 1928 (9.5) as in 1921 (9.4). The State has not only a comparatively low general death rate but also a comparatively low infant mortality rate. The infant mortality rate was 8 per cent lower in 1928 (54) than in 1921 (59). The rate of 1928 represents 2,656 deaths of infants under 1 year of age in the State. If the rate of 1921 had prevailed in 1928 there would have been 2,921 infant deaths; in other words, 265 infants survived their first year in 1928 who would have died under conditions prevailing in 1921. The difference in the rates in urban and in rural areas was approximately the same as for the State as a whole, the rate for urban areas being 59 in 1921 and 55 in 1928 and that for rural areas being 59 in 1921 and 53 in 1928.

The maternal mortality rate was the same in 1928 (57) as in 1921. The rate for urban areas was slightly lower in 1928 (78) than in 1921 (81), and the rate for rural areas also was lower (43 in 1928 and 44 in 1921).

# MISSISSIPPI

## STAFF AND ACTIVITIES IN 1929

Administrative agency: State board of health, bureau of child hygiene and public-health nursing, Jackson.

Funds expended: Federal, \$44,153.16; State, \$34,153.16; total, \$78,306.32.

### Staff:

Director (State health officer serving part time) 1 physician (part time), 6 nurses, 1 dental hygienist (part time), 1 nutritionist (part year), 1 supervisor of midwives (part time), 1 vital-statistics field worker (part year), 1 vital-statistics clerk, 2 technicians (part time, 1 part year), 1 accountant (part time), 3 stenographers (2 part time), and 1 typist. Eighteen county nurses in 13 counties were paid in part from maternity and infancy funds.

### Activities:

Child-health conferences conducted by physicians—429; infants and pre-school children registered and examined—6,728.

Defects found in children examined at conferences—7,896; children having defects—4,465. Parents had defects corrected in 787 of the children.

Prenatal conferences conducted by physicians—147; expectant mothers registered and examined—1,202; visits to conferences—1,594.

Dental conferences—384, conducted by dentists who gave their services; expectant mothers receiving dental examination—1,202; preschool children receiving dental examination—8,876.

New permanent prenatal centers—4 established as a result of the bureau's maternity and infancy work. They are supported by county funds.

Hygiene classes—126 organized in schools; pupils enrolled—3,900 (3,645 girls, 255 boys); number completing course—3,838; lessons in course—12 to 24 (18 hours). Instruction in prenatal, infant, and child care was included in the course.

The supervision and instruction of midwives was continued. At the close of the year under review 3,040 midwives were practicing in the State.

Home visits by nurses—8,291 (prenatal cases seen, 1,049; obstetrical cases, 373; postnatal cases, 397; infants, 1,526; preschool children, 2,989).

Survey—1, of midwives, state-wide.

Talks and lectures—15,000, to audiences totaling 250,000 persons.

Literature prepared—Babies Are Safest, That Eyes May See, Milk, Aims and Activities, Infant and Preschool Records, How Teeth Grow, Prevent Facial Deformities.

Literature distributed—approximately 50,000 pieces.

Nutrition work was included in the activities of all the nurses and was particularly stressed by the oral-hygiene division of the State board of health, whose supervisor was a dental hygienist paid in part from maternity and infancy funds.

Exhibits were on display in all county health department offices. Posters were shown at meetings of midwives. Films on maternal and child hygiene were shown by the motion-picture truck, which traveled in 24 counties.

Breast feeding was stressed in talks to mothers and in the literature distributed.

Infants born in the State during the calendar year 1928—48,034; infants under 1 year of age reached by the work of the bureau during the fiscal year ended June 30, 1929—approximately 47,000.

The bureau sends literature on infant hygiene to parents of all infants whose births are registered in the State bureau of vital statistics.

Counties in the State—82; counties in which maternity and infancy work was done during the year—82.

Since the beginning of the State's cooperation under the maternity and infancy act 12 counties have assumed the responsibility for maternity and infancy work begun with maternity and infancy funds, and 1 was ready to assume such responsibility at the close of the year under review.

As a result of the bureau's work many health conferences were conducted by local agencies.

The following organizations cooperated in the bureau's work: State league of women voters, State federation of women's clubs, State development board, parent-teacher associations, and civic clubs. Among the children examined at health conferences reported in the foregoing paragraphs were approximately 5,000 examined in the "Get ready for school" campaign sponsored by the National Congress of Parents and Teachers.

Among the outstanding features of the year's work were the hygiene classes, the prenatal conferences, and the supervision of midwives.

#### INFANT AND MATERNAL MORTALITY RATES

The general death rate for Mississippi was 31 per cent higher in 1928 (14.5) than in 1921 (11.1). The infant mortality rate was higher in 1928 (74) than in 1921 (68), but the difference (9 per cent) was not so great as in the case of the general death rate. The rates for both white and colored infants in the State were higher in 1928 than in 1921, but the difference was greater for white than for colored infants. The rural rate was higher and the urban rate lower. The rates were as follows:

	1921	1928
State.....	68	74
Urban.....	95	86
Rural.....	66	72
White.....	53	61
Colored.....	85	86

There was practically no difference in the maternal mortality rates in 1921 and 1928. In the urban areas the rate was 15 per cent lower, the greater part of the reduction being due to the lower rates among white mothers, but in rural areas the rate was lower among colored mothers only. The rates were as follows:

	1921	1928
State.....	95	94
White.....	71	76
Colored.....	120	112
Urban.....	180	154
White.....	157	119
Colored.....	217	205
Rural.....	88	88
White.....	62	70
Colored.....	114	105

### MISSOURI

#### STAFF AND ACTIVITIES IN 1929

Administrative agency: State board of health, division of child hygiene, Jefferson City.

Funds expended: Federal, \$24,186.81; State, \$19,186.81; total, \$43,373.62.

#### Staff:

Director (physician), 1 physician, 5 nurses (3 part year, 1 part time), 1 stenographer, 1 clerk (part time). Additional physicians were employed as needed. Fourteen county nurses were paid in full or in part from maternity and infancy funds.

Volunteer assistants—147 county and city health officers, 37 nurses, a number of dentists, 80 lay persons.

#### Activities:

Child-health conferences conducted by physicians—553; infants and preschool children registered and examined—10,188; visits to conferences—15,981.

Defects found in children examined at conferences—12,868; children having defects—7,730. Parents had defects corrected in approximately 20 per cent of the children.

Conferences conducted by nurses, no physician present—4,347; infants and preschool children inspected—22,496; mothers instructed in prenatal care—250; visits to conferences by children—42,680; visits by mothers—405.

Dental conferences—41, conducted by dentists who volunteered their services under the auspices of dental societies; preschool children receiving dental examination—476.

New permanent child-health centers—7 established as a result of the division's maternity and infancy work. They are supported by State and county funds.

## Activities—Continued.

Classes for girls in care of infants and preschool children—10 organized; girls enrolled—166; number completing course—102; lessons in course—12. Classes for mothers—109 organized; mothers enrolled (plus those carried over from the previous year)—2,502; number completing course—1,680; lessons in course—8.

Home visits by nurses—7,180 (prenatal cases seen, 612; obstetrical cases, 52; postnatal cases, 408; infants and preschool children, 5,370).

Group demonstrations—1,025, on giving sun baths, dressing the baby, preparing the baby's food, and other phases of infant and child care, at health conferences and the classes for mothers.

Campaigns—2: (1) To have preschool children qualify as "six-pointers" and "nine-pointers." To qualify as six-pointers the children had to be free from defects in vision, hearing, throat, teeth, and posture and be of normal weight. To qualify as nine-pointers the children also had to have their births registered, be immunized against diphtheria, and be vaccinated against smallpox. (2) To have children under 4 years of age qualify as "blue-ribbon babies." This project was determined upon in response to a demand from Missouri mothers for a plan of rating the health of the younger preschool children. The division drew up a general scheme, which was presented at a conference of representatives of 15 State organizations and unanimously adopted by them. The representatives furnished the names of local chairmen of their respective organizations throughout the State and prepared a mimeographed letter, which was sent to these chairmen with other child-health material. In this way 1,600 local clubs were reached. About 75 clubs sponsored child-health conferences conducted by local physicians, and the number of blue-ribbon babies in the State is slowly increasing. Plans were made to conduct at the State fair a blue ribbon baby contest instead of the better-babies contests of previous years, prizes to be awarded to children who met the blue-ribbon requirements. These are as follows: Good nutrition, normal dentition, normal nose and throat conditions, normal genitalia, no remediable orthopedic defect, average mental development, proof that birth has been registered, proof of immunization against diphtheria and smallpox, practice of good health habits, daily sun baths when the weather permits, and cod-liver oil during the rest of the year for any child showing signs of rickets.

Talks and lectures—431.

Literature prepared—Sunlight for Babies, Prevention of Babies' Sore Eyes, Rural Public-Health Nursing, Tonsils and Adenoids, Blue-Ribbon Babies, Suggestions for the Correction of Underweight in Children, Lesson Plans for Mothers' Classes.

Literature distributed—290,887 pieces.

New names registered for prenatal letters—830; prenatal letters distributed—904 sets.

In order to meet the demand for competent rural public-health nurses a rural teaching center was established in connection with the Boone County Health Department. The staff of the department consisted of a physician and four nurses, one of whom was paid from maternity and infancy funds. She served as chief nurse in the unit and directed the work of the student nurses. Through arrangement with the Rockefeller Foundation each received a daily stipend of \$3 while in attendance at the training center, provided she received no compensation from any other agency during that period. The course consisted of practical field experience and weekly lectures by members of the staff of the State division and other State representatives on the various phases of a generalized nursing program for rural districts. Each week the chief examined and discussed with these nurses the records of individual experiences. Special emphasis was placed on prenatal, infant, and preschool-child work. Seven nurses had completed the full 2-month course by June 30, 1929, and five had spent one to two weeks at the center. Each was pledged to accept a rural position in public-health nursing in Missouri and to remain in that position at least a year provided her services were satisfactory to the county employing her. Arrangements were made with the University of Missouri whereby nurses taking the full 2-month course receive six hours of university credit.

## Activities—Continued.

Graduate course for physicians—1, for rural health officers, on the care and feeding of infants, conducted at the Washington University medical school for one week. Two hours a day were spent in the pediatric clinics, and a series of lectures on nutrition, immunization, habit training, and common childhood infections was given by members of the pediatric staff. Ten health officers took the course. Since their return to their stations most of them have established permanent child-health centers.

Nutrition work was done through individual instruction given by the nurses in the course of their work.

Exhibits conducted—64, consisting of maps, posters, graphs, mechanical health man, and films shown in automatic motion-picture machine. Exhibit material prepared—graphs, posters, and maps. Exhibit material was lent 137 times.

Articles prepared—29, on various phases of child hygiene, for the bulletin of the State board of health.

Breast feeding was stressed in talks to women's clubs and in demonstrations of manual expression for nurses. It was estimated that about 60 per cent of the infants in the State are breast fed.

Infants born in the State during the year—63,401; infants and preschool children reached by the work of the division (exclusive of those reached by literature distributed)—38,054; expectant mothers reached (exclusive of those reached by literature distributed)—1,766.

The division sends literature on infant hygiene to parents of all infants whose births are registered in the State bureau of vital statistics.

Counties in the State—114; counties in which maternity and infancy work was done during the year—60; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—114.

As a result of the division's work one new county health department and one county nursing service have been organized.

The division gave supervisory assistance to public and private child-health agencies throughout the State.

The following organizations cooperated in the division's work: State agricultural college (extension service), State society for crippled children, State conference of social workers, State federation of women's clubs, women's auxiliary of the State medical society, American Legion, and parent-teacher associations. Of the children examined at health conferences reported in the foregoing paragraphs approximately 20 per cent were examined in the "Get ready for school" campaign sponsored by the National Congress of Parents and Teachers.

Among the outstanding features of the year's work were the blue ribbon baby project to foster interest in improving the health of the younger preschool children and the establishment of the teaching center for public-health nurses preparing to serve rural districts.

#### INFANT AND MATERNAL MORTALITY RATES

Missouri was not admitted to the United States birth-registration area until 1927. Mortality rates of earlier years therefore are not available for comparison with those of 1928.

The general death rate for the State in 1928 (12.8) was 7 per cent higher than for the birth-registration area (12). The infant mortality rate for the State (66), however, was 4 per cent lower than that for the birth-registration area (69). The high infant mortality rate for the State was due to the high rate for colored infants (123), the rate for white infants being lower for the State (62) than for the birth-registration area (64). The rates for both urban and rural areas of the State were lower than those of the birth-registration area; the urban rate was 68 for the State and 69 for the birth-registration area, and the rural rate was 64 for the State and 68 for the birth-registration area.

The maternal mortality rate in 1928 was influenced by the high rate for colored mothers, although the rate for colored mothers in the State was lower than in the birth-registration area, as the following figures show:

	Missouri	Area
Total.....	70	69
Urban.....	84	78
Rural.....	59	62
White.....	68	63
Colored.....	106	121

## MONTANA

## STAFF AND ACTIVITIES IN 1929

Administrative agency: State board of health, child-welfare division, Helena.  
Funds expended: Federal, \$17,305.33; State, \$8,700; total, \$26,005.33.

## Staff:

Director (physician, part year), 4 nurses (part time, 2 part year), 1 vital-statistics clerk, 1 bookkeeper (part time), 1 stenographer, 1 clerk (2 months). Eleven county nurses were paid in part from maternity and infancy funds.

## Activities:

Child-health conferences conducted by physicians—170; visits to conferences by infants and preschool children—5,776.

New permanent child-health center—1 established as a result of the division's maternity and infancy work. It is supported by maternity and infancy funds, county funds, and a private organization.

Classes for girls in care of infants and preschool children—5 organized.

Classes for mothers—2 organized.

Home visits by nurses—5,081 (prenatal cases seen, 382; postnatal cases, 175; obstetrical cases, 3; infants, 1,850; preschool children, 2,671).

Group demonstrations—75.

Talks and lectures—60 (including 38 by a physician lent to the State by the United States Children's Bureau).

Literature prepared—Sunny Boys (leaflet).

Literature distributed—98,610 pieces.

New names registered for prenatal letters—579; prenatal letters distributed—579 sets.

Exhibits conducted—30. Exhibit material was lent 11 times.

Infants born in the State during the year—10,175; infants under 1 year of age reached by the work of the division (exclusive of those reached by literature distributed)—3,552; preschool children reached (exclusive of those reached by literature distributed)—6,790; expectant mothers reached (exclusive of those reached by literature distributed)—1,192.

The division sends literature on infant hygiene to parents of all infants whose births are registered in the State bureau of vital statistics.

Counties in the State—56; counties in which maternity and infancy work was done during the year—28; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—56.

The following organizations cooperated in the division's work: American Red Cross, State tuberculosis association, State federation of women's clubs, the parent-teacher association, and civic clubs.

Among the outstanding features of the year's work were the requests made to the division for the establishment of new county nursing services.

## INFANT AND MATERNAL MORTALITY RATES

Montana was not admitted to the United States birth-registration area until 1922. Comparison is made therefore between the infant and maternal mortality rates of 1922 and 1928.

The general death rate for the State was 22 per cent higher in 1928 (10.5) than in 1922 (8.6). The infant mortality rate, on the contrary, was 15 per cent lower in 1928 (61) than in 1922 (70). The 1928 rate for the State was the lowest since the State's admission to the birth-registration area. Reduction in the rates has occurred in both urban and rural areas, the rate for urban areas being 59 in 1928 and 78 in 1922, that for rural areas being 62 in 1928 and 68 in 1922.

The maternal mortality rate was also lower in 1928 (75) than in 1922 (79). This difference was due entirely to the lower rate in rural areas, which was 64 in 1928 as compared with 77 in 1922, whereas the rate for urban areas was 105 in 1928 as compared with 86 in 1922. The public-health nurses employed by the State child-welfare division have done exceptional work in reaching rural mothers and infants in spite of mountain barriers and other unusual difficulties in transportation.

## NEBRASKA

### STAFF AND ACTIVITIES IN 1929

Administrative agency: State department of public welfare, bureau of health, division of child hygiene, Lincoln.

Funds expended: Federal, \$16,000; State, \$6,000; total, \$22,000.

#### Staff:

Director (nurse), 3 nurses (1 part year), 1 inspector of maternity and infant homes (part time, part year), 1 vital-statistics clerk, 1 stenographer.

Volunteer assistants—approximately 60 physicians, 28 dentists, 12 nurses.

#### Activities:

Child-health conferences conducted by physicians—38; infants and pre-school children registered and examined—1,163.

Defects found in children examined at conferences—2,829; children having defects—1,163. Parents had defects corrected in approximately one-third of the children (report incomplete).

Classes for girls in care of infants and preschool children—234 organized; girls enrolled—4,079; number completing course—3,780; lessons in course, 2 to 5, followed by a written review in most instances. These classes were taught in 103 high schools by a nurse from the division's staff. Special efforts were made to have the senior girls take the course, but in some small high schools all the girl pupils enrolled in the classes. Many girls who plan to be teachers were in the classes, thus becoming prepared to extend the work to their own schools later.

Classes for mothers—15 organized; mothers enrolled—572; number completing course—40; lessons in course—4.

Home visits by nurses—1,041 (prenatal cases seen, 73; infants, 427; pre-school children, 541).

Maternity homes inspected—103; inspections made—103.

Infant homes inspected—18; inspections made—18.

Group demonstrations—382, on giving sun baths, bathing and dressing the baby, and other phases of infant and child care, at classes and other group meetings.

The division cooperated in a survey of maternal mortality (continued from the previous year) made in the State by the United States Children's Bureau with the indorsement of the State medical society.

Talks and lectures—73.

Literature distributed—283,771 pieces.

New names registered for prenatal letters—911; prenatal letters distributed—911 sets.

A special lesson in prenatal care was given in connection with a course on nutrition of the expectant mother conducted by the extension service of the State college of agriculture in eight counties for groups of rural club leaders who will teach similar lessons in their home clubs.

Nutrition work was done through individual instruction to mothers at classes and in home visits.

Exhibit conducted—1, at the State fair, of films, models, and posters on sun baths. Exhibit material was lent once.

Breast feeding was stressed in the instruction given in classes for mothers and girls and in the literature distributed.

Infants born in the State during the year—27,160; infants and preschool children reached by the work of the division—30,239; expectant mothers reached—911.

The division sends literature on infant hygiene to parents of all infants whose births are registered in the State bureau of vital statistics.

Counties in the State—93; counties in which maternity and infancy work was done during the year—71; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—90.



Activities—Continued.

The division gave supervisory assistance to local organizations doing child-health work.

The following organizations cooperated in the division's work: State college of agriculture (extension division), American Red Cross, State federation of women's clubs, American Legion and auxiliary, Woman's Christian Temperance Union, and the parent-teacher association. They assisted with conferences, classes, and general health programs. Among the children examined at health conferences reported in the foregoing paragraphs were 179 examined in the "Get ready for school" campaign sponsored by the National Congress of Parents and Teachers.

Among the outstanding features of the year's work were the classes in infant hygiene that were organized in high schools and the lessons in prenatal care that were given to leaders of rural clubs.

INFANT AND MATERNAL MORTALITY RATES

The general death rate for Nebraska was somewhat higher in 1928 (9.7) than in 1921 (9.2). The infant mortality rate in 1928 (53), however, was definitely lower than in 1921 (59), as was the rate in urban areas in 1928 (59), as compared with 74 in 1921. The rates in rural areas were not significantly different (51 in 1928 and 54 in 1921). In 1928 in the State as a whole there were 1,481 deaths of infants under 1 year of age. If conditions affecting infant mortality had been the same as in 1921 there would have been 1,654 such deaths; 173 infants survived who would have died under conditions existing in 1921.

The maternal mortality rates, although lower in 1928 than in 1921, showed no significant differences. The rate for the State was 60 in 1928 and 66 in 1921; that for urban areas was 90 in 1928 and 105 in 1921; that for rural areas was 51 in 1928 and 55 in 1921. The maternal mortality rate from puerperal albuminuria and convulsions has shown a downward trend from 1921 to 1928, and deaths from these causes are influenced by the care the mother receives during pregnancy. The rate from these causes, although slightly higher in 1928 (12.8) than in 1927 (11.8), was 34 per cent lower than the 1921 rate (19.3).

Public attention has been directed to the importance of prenatal care through the State medical society, whose committee on maternal welfare (especially the chairman) were greatly interested in the study of maternal mortality being made in the State in cooperation with the United States Children's Bureau and gave valuable assistance in the study.

NEVADA

STAFF AND ACTIVITIES IN 1929

Administrative agency: State board of health, child-welfare division, Reno.

Funds expended: Federal, \$10,725.27; State, \$3,582.50; total, \$14,307.77.

Staff:

Executive secretary. Five county nurses who worked in 16 counties were paid in part from maternity and infancy funds.

Activities:

Combined prenatal and child-health conferences conducted by physicians—32; expectant mothers registered—16; infants and preschool children registered and examined—201.

Conferences conducted by nurses, no physician present—93; infants and preschool children inspected—1,203; mothers instructed in prenatal care—180.

Classes for girls in care of infants and preschool children—27 organized; lessons in course—25.

Classes for mothers—21 organized; mothers enrolled—504; number completing course—329; lessons in course—25.

Home visits by nurses—3,020 (prenatal cases seen, 315; obstetrical cases, 17; postnatal cases, 9; infants, 973; preschool children, 1,706).

Group demonstrations—19, on various phases of the care of infants and preschool children.

Literature distributed—approximately 1,500 pieces.

Prenatal letters distributed—250 sets.

## Activities—Continued.

Breast feeding was stressed in the instruction given to mothers. It was estimated that 50 per cent of the infants in the State are breast fed.

Infants under 1 year of age reached by the work of the division—3,728; pre-school children reached—2,263; expectant mothers reached—approximately 700.

Counties in the State—17; counties in which maternity and infancy work was done during the year—17.

The Nevada Public Health Association cooperated in the division's work, contributing part of the salary of each nurse employed by the division.

An outstanding achievement of the year's work was the admission of the State to the United States birth-registration area.

## INFANT AND MATERNAL MORTALITY RATES

Nevada was not admitted to the United States birth-registration area until 1929. Figures, therefore, are not available from the United States Bureau of the Census for comparison of infant or maternal mortality rates.

Since the beginning of the State's cooperation under the maternity and infancy act the child-welfare division has assisted in the work to promote more complete registration of births in the effort to reach the standard required for admission to the area. The admission of Nevada to the United States birth and death registration areas was announced by the United States Bureau of the Census in April, 1929.

## NEW HAMPSHIRE

## STAFF AND ACTIVITIES IN 1929

Administrative agency: State board of health, division of maternity, infancy, and child hygiene, Concord.

Funds expended: Federal, \$13,504.86; State, \$7,988.31; total, \$21,493.17.

## Staff:

Director (nurse, not paid from maternity and infancy funds), 6 nurses (1 part year), 2 stenographers. Physicians were employed as needed to conduct conferences.

## Activities:

Child-health conferences conducted by physicians—98; infants and preschool children registered and examined—2,968.

Defects found in children examined at conferences—2,708; children having defects—1,806. Parents had defects corrected in 461 of the children.

The division held its first child-guidance clinic in connection with one of the health conferences, a consultant on child guidance and behavior being added to the usual conference staff.

New permanent child-health centers—2 established as a result of the division's maternity and infancy work. They are supported by local public and private funds.

New permanent prenatal center—1 established as a result of the division's maternity and infancy work. It is supported by private funds.

Classes for girls in care of infants and preschool children—12 organized; girls enrolled and completing course—345; lessons in course—6.

Classes for mothers—6 organized; mothers enrolled and completing course—179; lessons in course—6.

Home visits by nurses—13,382 (prenatal cases seen, 628; obstetrical cases, 4; postnatal cases, 535; infants, 1,974; preschool children, 5,476).

Maternity homes inspected—12; inspections made—12.

Infant homes inspected—16; inspections made—17.

Group demonstrations—168, at conferences and classes, on child care, posture correction, preparation of food, preparation of maternity packages, and other phases of maternal, infant, and child care.

Surveys—2: (1) To ascertain the number of infants and preschool children needing supervision, state-wide. (2) Of the number of infants breast fed, in 5 districts. It was found that 57 per cent of those listed were breast fed at birth, 43 per cent at 1 month of age, 24 per cent at 3 months, and only 15 per cent at 6 months.

The division cooperated in a study of maternal mortality made in the State by the United States Children's Bureau with the indorsement of the State medical society.

## Activities—Continued.

Campaigns—2: (1) For immunization of children against diphtheria, in 13 towns; 2,088 children were immunized. (2) For observance of May Day as Child Health Day, state-wide.

Talks and lectures—235.

Literature prepared—leaflets on breast feeding and prevention of diphtheria.

Literature distributed—193,648 pieces.

New names registered for prenatal letters—1,284; prenatal letters distributed—1,284 sets.

A 3-day institute for nurses was conducted. This included discussions of various phases of maternity and child-hygiene work, demonstrations, and motion pictures.

The division maintained a library that was open to all public-health nurses in the State.

Nutrition work was done through individual instruction to mothers at conferences and in home visits. One period in all the classes for mothers and for girls was devoted to instruction on nutrition.

Exhibits conducted—202, at conferences, schools, parent-teacher institutes, and other meetings. Exhibit material prepared—posters, layettes, sun suits, maternity outfits, and other exhibits relating to maternal, infant, and child care and hygiene. Exhibit material was lent 125 times.

Breast feeding was stressed in talks to public-health nurses, in a letter to the county medical societies, in fliers in all mail sent from the division, and in the articles prepared for the monthly bulletins of the State board of health. It was estimated that 57 per cent of the infants in the State are breast fed.

Infants born in the State during the year—8,680; infants under 1 year of age reached by the work of the division—8,680; preschool children reached—9,023; expectant mothers reached—3,500.

The division sends literature on infant hygiene to parents of all infants whose births are registered in the State bureau of vital statistics and follows this with other literature at regular intervals.

Counties in the State—10; counties in which maternity and infancy work was done during the year—10.

The division gave advisory service to State and local organizations doing child-health work.

The following organizations cooperated in the division's work: State board of education, State university (extension service), State league of women voters, State farm bureau, State association of university women, State tuberculosis association, American Red Cross, American Legion, and the parent-teacher association. They gave assistance at conferences, classes, and the institute for nurses.

Among the outstanding features of the year's work were the expansion of the prenatal program and the initiation of child-guidance clinics.

## INFANT AND MATERNAL MORTALITY RATES

The general death rate for New Hampshire was practically the same in 1928 (14.1) as in 1921 (13.7). The infant mortality rates for the State and for both urban and rural areas, however, have shown a downward trend from 1921 to 1928 and were markedly lower in 1928 than in 1921, as the following table shows:

Area	Deaths of infants under 1 year of age per 1,000 live births		
	1921	1928	Percentage of difference
State.....	87	69	-21
Urban.....	95	74	-22
Rural.....	78	64	-18

The new low rate obtained for the State in 1927 was maintained in 1928; in rural areas the 1928 rate was the lowest recorded; the lowest rate in urban areas was reached in 1927 (72), the 1928 rate being 2 points higher (74). If the 1921 rate had obtained in 1928, 18 more infants would have died in every 1,000 born alive; in other words, instead of 602 deaths of infants under 1 year of age there would have been 755. Although the rates from all causes have declined since 1921, the greatest decline has been in the rate from gastrointestinal diseases. The rate from these causes in 1928 (5.2) was 67 per cent lower than that in 1921 (15.6).

There was some fluctuation in the maternal mortality rates during the period 1921 to 1928, but on the whole there was no decline. The maternal mortality for the State was 63 in 1928, and 62 in 1921. The rate in urban areas was 62 in 1928, and 63 in 1921; in rural areas it was 65 in 1928, and 62 in 1921.

## NEW JERSEY

### STAFF AND ACTIVITIES IN 1929

Administrative agency: State department of health, bureau of child hygiene, Trenton.

Funds expended: Federal, \$35,569.10; State, \$26,284.55; total, \$61,853.63.

Staff: The Federal and State maternity and infancy funds constituted slightly less than half the bureau's budget during the year. The following staff were paid from maternity and infancy funds: 33 nurses (5 part year, 3 serving as assistant supervisors, 14 as district supervisors, 16 as teachers of child hygiene), 1 publicity agent (part year), 6 clerks (4 part year).

#### Activities:

Infants and preschool children registered and examined at child-health conferences conducted by physicians—5,600; visits to conferences—29,413.

Defects found in children examined at conferences—3,966; children having defects—2,700. Parents had defects corrected in 1,572 of the children.

Prenatal conferences conducted by physicians—125; expectant mothers registered and examined—750; visits to conferences—3,074.

Conferences conducted by nurses, no physician present—562; infants and preschool children inspected—2,717; visits to conferences by children—13,481.

New permanent child-health centers—12 established as a result of the bureau's maternity and infancy work. They are supported by State and Federal funds.

New permanent prenatal center—1 established as a result of the bureau's maternity and infancy work. It is supported by Federal and State funds.

Classes for girls in care of infants and preschool children—173 organized; girls enrolled—2,843; number completing course—2,800; lessons in course—10.

Courses in child hygiene were conducted in some of the normal schools.

Two schools in which these courses were formerly taught by staff nurses arranged to conduct similar courses without further assistance from the bureau of child hygiene.

A course of 12 lessons and demonstrations was given at the State reformatory for women. The essentials of prenatal care and the care of the baby were taught.

The instruction and supervision of midwives was continued as in previous years. The 405 licensed midwives in the State attend approximately 18 per cent of the total births, in some communities as many as 64 per cent. The midwives have at least 1,800 hours' training in a 9 months' period and are licensed by the State board of medical examiners. Their licenses must be registered yearly. Supervision consists of home visits by the county supervisors, monthly meetings of midwives' county organizations, follow-up of their prenatal, delivery, and postpartum work, and the investigation of maternal deaths, infant deaths, and stillbirths occurring in their practice. A State conference of midwives is held annually.

## Activities—Continued.

A member of the bureau's staff was assigned to assist in the instruction of midwives in the special course for licensed midwives in one of the hospitals in the State. The course was reorganized during the year under review so that the time to be spent in the hospital by the midwives will be devoted to instruction and to the following practical experience: Proper care during pregnancy, labor and delivery, and the postpartum period; physical examinations, urinalysis, pelvimetry, the taking of blood pressure, palpation for position of the baby, detection of the fetal heartbeat, aseptic preparation for delivery, rectal examination, and examination for laceration.

Home visits by nurses—approximately 65,000.

Maternity homes inspected—12; inspections made—36.

Infant homes inspected—247; inspections made—741.

Community demonstrations—3 (continued from the previous year), to show the value of prenatal care.

Group demonstrations—225, on prenatal care and related subjects.

Campaign—1, for immunization of preschool children against diphtheria.

Talks and lectures—38.

Literature distributed—approximately 100,000 pieces.

Number of sets of prenatal letters distributed—350.

The supervisor of nurses gave a series of four lectures on child-hygiene work to groups of nurses.

Exhibits conducted—4; exhibit material prepared—map and chart.

Scientific article prepared—Maternal and Infant Mortality.

Breast feeding was stressed in the instruction given to mothers. It was estimated that 80 per cent of the babies under the supervision of the State nurses are breast fed during their first month of life.

Infants born in the State during the year—70,004; infants under 1 year of age reached by the work of the bureau—25,000; preschool children reached—12,000; expectant mothers reached—6,000.

Counties in the State—21; counties in which maternity and infancy work was done during the year—21.

The bureau gave advisory and supervisory assistance to approximately 100 child-hygiene nurses paid by local communities.

The following organizations cooperated in the bureau's work: American Red Cross, State league of women voters, State federation of women's clubs, State commission for the blind, State tuberculosis league, the parent-teacher association, and a fraternal organization. They assisted in caring for crippled, blind, and tuberculous children. Among the children examined at health conferences reported in the foregoing paragraphs were 3,005 examined in the "Get ready for school" campaign sponsored by the National Congress of Parents and Teachers.

## INFANT AND MATERNAL MORTALITY RATES

The general death rate in New Jersey was practically the same in 1928 (11.8) as in 1921 (11.7). The infant mortality rate, however, was considerably lower in 1928 than in 1921, as the following table shows:

Area	Deaths of infants under 1 year of age per 1,000 live births		
	1921	1928	Percentage of difference
State.....	74	65	-12
Urban.....	74	66	-11
Rural.....	74	63	-15
White.....	71	61	-14
Colored.....	139	124	-11

If the 1921 infant mortality rate had prevailed in 1928, 9 more infants in every 1,000 born alive in the State would have died during the first year of life. The change in conditions resulted in a total saving of 614 infant lives. The change in the rate is due primarily to the rate from gastrointestinal diseases, which was 54 per cent lower in 1928 (7.8) than in 1921 (17.1). Gastrointestinal diseases caused 23 per cent of the total infant deaths in 1921 but only 12 per cent in 1928.

The maternal mortality rate for the State was the same in 1928 (59) as in 1921, the urban rate being slightly lower and the rural rate being higher, as the following figures show:

	1921	1928
State-----	59	59
Urban-----	68	65
Rural-----	35	44
White-----	56	57
Colored-----	125	89

## NEW MEXICO

### STAFF AND ACTIVITIES IN 1929

Administrative agency: State department of public welfare, bureau of public health, division of child hygiene and public-health nursing, Santa Fe.

Funds expended: Federal, \$12,453.17; State, \$8,494.08; total, \$20,947.25.

#### Staff:

Director (nurse), 2 nurses (1 part year), 2 statistical clerks (1 part year), 1 bookkeeper (part time), 1 birth-registration clerk (part year), 1 stenographer (part time), 1 clerk (part year). Six county nurses were paid in part from maternity and infancy funds.

Volunteer assistants—15 physicians, 2 dentists, 14 nurses, 120 lay persons.

#### Activities:

Child-health conferences conducted by physicians—11; infants and preschool children registered and examined—121.

Defects found in children examined at conferences—101; children having defects—74.

Conferences conducted by nurses, no physician present—2; infants and preschool children inspected—61; visits to conferences by children—69; visits by mothers—56.

New permanent child-health center—1 established as a result of the division's maternity and infancy work. It is supported by local funds.

Classes for girls in care of infants and preschool children—2 organized; girls enrolled—58; number completing course—50; lessons in course—8.

Class for midwives—1 organized; midwives enrolled—8; number of lessons in course—10. The course was not completed until after the close of the fiscal year under review. Many midwives were instructed in their own homes.

Home visits by nurses—2,459 (prenatal cases seen, 320; obstetrical cases, 156; infants and preschool children, 2,068; midwives, 89).

Community demonstrations—8, of a maternity and infancy public health nursing program, in 8 counties.

Group demonstrations—21, of various phases of prenatal, postnatal, and infant care, at meetings with a total attendance of 424 persons.

Survey—1, of midwives, in 17 counties.

Campaign—1, state-wide, to increase the registration of births to the standard required for admission into the United States birth-registration area.

Talks and lectures—51, to audiences totaling 1,884 persons.

Literature distributed—20,491 pieces.

Nutrition work was done through individual instruction to mothers.

Exhibits conducted—2. Exhibit material was lent five times.

Statistical study made—causes of death, by age groups.

Breast feeding was stressed in instruction given to mothers.

Infants born in the State during the year—11,265; infants under 1 year of age and preschool children reached by the work of the division—13,653; expectant mothers reached—907 (report incomplete).

## Activities—Continued.

The division sends literature on infant hygiene to parents of all infants whose births are registered in the State bureau of vital statistics.

Counties in the State—31; counties in which maternity and infancy work was done during the year—20; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—31.

Since the beginning of the State's cooperation under the maternity and infancy act two counties have assumed the responsibility for maternity and infancy work begun with maternity and infancy funds. Four additional counties assumed responsibility for such work at the close of the year under review.

As a result of the division's work three county nurses not paid from maternity and infancy funds included maternity and infancy work in their programs, and two school nurses conducted conferences for infants and preschool children.

The division gave supervisory assistance to local nurses doing maternity and infancy work.

The following organizations cooperated in the division's work: State bureau of child welfare, State public-health association, State federation of women's clubs.

An outstanding feature of the year's work was the improved registration of births and deaths resulting from the campaign conducted by the division.

## INFANT AND MATERNAL MORTALITY RATES

New Mexico was not admitted to the United States birth-registration area until 1929. Figures, therefore, are not available from the United States Bureau of the Census for infant or maternal mortality rates.

The division of child hygiene and public-health nursing has conducted campaigns for more complete registration of births in an effort to attain the standard required for admission to the United States birth-registration area. The admission of New Mexico to the area was announced by the United States Bureau of the Census in November, 1929.

## NEW YORK

## STAFF AND ACTIVITIES IN 1929

Administrative agency: State department of health, division of maternity, infancy, and child hygiene, Albany.

Funds expended: Federal, \$85,274.34; State, \$85,468.13; total, \$170,742.47.

## Staff:

Director (physician, not paid from maternity and infancy funds), 11 physicians (5 part time, 4 part year), 33 nurses (6 part year), 1 dental hygienist, 1 nutritionist, 2 supervisors of midwives (nurses), 3 vital-statistics clerks (2 part year), 1 bookkeeper, 1 advance agent (for health conferences), 3 stenographers, 5 clerks (3 part year), 1 motion-picture operator, 2 punching-machine operators (part year), 1 chauffeur. Three county nurses were paid from maternity and infancy funds. Two hundred and twenty-one physicians throughout the State were paid for occasional service.

## Activities:

Combined prenatal and child-health conferences conducted by physicians—1,095; expectant mothers registered—2,471; number examined—2,330; infants and preschool children registered and examined—2,978; visits to conferences by expectant mothers—10,204; visits by children—3,378.

Child-health conferences conducted by physicians—824; infants and preschool children examined—11,293; visits to conferences—12,640. Defects found in children examined at conferences—14,799; children having defects—5,826.

Prenatal conferences conducted by physicians—396; expectant mothers registered and examined—933; visits to conferences—3,012; total number of examinations made—2,922.

Conferences conducted by nurses, no physician present—491; visits to conferences by infants and preschool children—3,100; visits by mothers—1,413.

Preschool children receiving dental examination by the dental hygienist—3,055.

## Activities—Continued.

New permanent combined prenatal and child-health centers—22 established as a result of the division's maternity and infancy work. They are supported by local funds.

New permanent child-health centers—11 established as a result of the division's maternity and infancy work. They are supported by local funds.

New permanent prenatal centers—3 established as a result of the division's maternity and infancy work. They are supported by local funds.

Classes for mothers—83 organized (78 by staff nurses, 5 by local nurses); mothers completing the course and receiving certificates—1,171. "Family-health conferences" were conducted for 79 groups of 10 to 30 women, to whom 6 to 8 lessons and demonstrations were given. The number of women receiving certificates after having attended at least 4 out of 6 classes and having passed a written examination was 1,142.

The inspection and supervision of midwives was continued as in previous years. Monthly questionnaires were sent to the midwives for report of their work. The reports showed that 290 midwives attended 5,126 deliveries (exclusive of those in New York City) during the calendar year 1928. Only 2 cases of puerperal septicemia among the mothers delivered by midwives were reported. A few reports had not been completed at the close of the year.

Home visits by nurses—51,052. The 28,271 visits classified as to type were as follows: Visits to mothers, 8,415; to infants, 11,111; to preschool children, 8,745.

Maternity homes inspected—108; inspections made—119.

Boarding homes for infants and preschool children inspected—454; inspections made—516.

Community demonstrations—13 (some continued from the previous year), of maternity and infancy public-health nursing, prenatal nursing, and breast feeding; 3 were county-wide and 10 covered communities. Staff nurses were assigned to the 10 communities to organize complete maternity and infancy programs, to establish mother and child health centers, mothers' health clubs, classes for girls, conferences to be conducted by nurses, and conferences to be conducted by physicians. In one community a teaching center for the instruction of staff and community maternity and infancy nurses was combined with the demonstration program.

Group demonstrations—many, at talks to nurses and to lay groups, at classes, and in visits to maternity homes and midwives.

All the nurses on the division's staff assisted in a state-wide campaign conducted by the State department of health to have preschool children immunized against diphtheria.

Talks and lectures—299.

Literature prepared—Baby Travel Kitchenette, Problem for Parents, nutrition literature (revised). A Handbook of Standard Methods in Maternity and Infancy Work, which was completed and issued, provides ready reference for those who are initiating or desirous of improving local child-hygiene work. Copies were sent to all local nurses, teaching institutions, directors of State child-hygiene divisions, and other interested persons. The requests for copies were so numerous that they could not all be complied with. One university adopted the book as a reference for a course in child hygiene.

Literature distributed—760,114 pieces.

Graduate courses in maternity and infant hygiene to prepare nurses to teach mothers' health clubs were conducted in six communities, and 34 nurses were granted certificates after an examination.

Nutrition work was done through group and individual instruction. Seventy-one lectures were given to miscellaneous audiences, and 4 to 6 lectures were given to 49 classes organized among home bureaus and other organizations.

Exhibits conducted—many. Exhibit material prepared—layettes, posters, panels, and "messages" to be used in motion-picture theaters. Exhibit material was lent 88 times.

Article prepared—Health Supervision of the Preschool Child in Small Towns and Rural Areas.

Statistical study made—puerperal deaths (continued from the previous year).



## Activities—Continued.

Breast feeding was stressed in the programs of all demonstration nurses and also was promoted by the special breast-feeding demonstration in one community.

Infants born in the State during the year—216,594; infants and preschool children reached by the work of the division (exclusive of those reached by literature distributed)—approximately 33,000; expectant mothers reached (exclusive of those reached by literature distributed)—approximately 12,500.

The division sends literature on infant hygiene to parents of all infants whose births are registered in the State bureau of vital statistics.

Counties in the State—62; counties in which maternity and infancy work was done during the year—62.

Since the beginning of the State's cooperation under the maternity and infancy act 7 counties have assumed the responsibility for maternity and infancy work begun with maternity and infancy funds, and 54 additional communities assumed such responsibility before the close of the year under review or at its close.

The staff nurses gave advisory and supervisory assistance to local nurses as well as to the division's nurses detailed to local communities for various types of maternity and infancy work. They standardized teaching and demonstration material, records, methods, and activities, conducted courses for nurses, assisted in planning community programs, and helped to arrange and initiate various maternity and infancy activities.

As a result of the division's work much maternity and infancy work was done by local organizations and persons not paid from maternity and infancy funds, including programs for the observance of May Day as Child Health Day, health conferences, classes for mothers, demonstrations at county fairs, and the furnishing of sterilized obstetrical packages, clinic gowns, layettes, and other supplies for use at health conferences.

The following organizations cooperated in the division's work: State commission for the blind, State Charities Aid Association, State league of women voters, State federation of women's clubs, State farm bureau, American Legion, Catholic Daughters of America, Home Bureau, several fraternal organizations, and the parent-teacher association. The assistance given included prompt treatment and nursing care for babies with sore eyes, help in organizing local work, provision and preparation of rooms for health conferences, transportation of persons attending conferences, assistance at conferences, preparation of supplies when the responsibility for conferences was assumed by local communities, and some financial aid. Among the children examined at health conferences reported in the foregoing paragraphs were 240 examined in the "Get ready for school" campaign sponsored by the National Congress of Parents and Teachers.

The outstanding feature of the year's work was the securing of a State appropriation sufficient to carry on the maternity and infancy program after the expiration of the Federal maternity and infancy act, June 30, 1929.

## INFANT AND MATERNAL MORTALITY RATES

New York did not begin cooperation with the Federal Government under the maternity and infancy act until 1923.

The general death rate for the State was 7 per cent higher in 1928 (13.1) than in 1921 (12.3). The infant mortality rate, however, was definitely lower in 1928 than in 1921, as the following table shows:

Area	Deaths of infants under 1 year of age per 1,000 live births		
	1921	1928	Percentage of difference
State.....	75	65	-13
Urban.....	76	66	-13
Rural.....	74	62	-16
White.....	74	63	-15
Colored.....	138	123	-11

This lower rate in the State meant saving 2,220 infant lives; that is, if the 1921 rate had prevailed in 1928, there would have been 16,732 infant deaths instead of 14,512. In both urban and rural areas and among both white and colored infants the rate was lower in 1928 than in 1921.

The infant mortality rate from gastrointestinal diseases showed a greater percentage of decrease during the period 1921 to 1928 than the rate from any other cause of death. The 1928 rate (7.2) was 53 per cent lower than the 1921 rate (15.2). The rate for 1927 (6.4) was the lowest during the period. Deaths from natal and prenatal causes, though not showing the same decreases as those from gastrointestinal diseases, showed a downward trend, the rate being 9 per cent lower in 1928 (34.3) than in 1921 (37.7). The rate from respiratory diseases, though showing some fluctuation during this period, was higher in 1928 (13.3) than in 1921 (11.1).

The maternal mortality rate was lower in 1928 than in 1921 in the State and in urban and rural areas. The rates for white and colored mothers were also lower in 1928 than in 1921, although there was considerable fluctuation during the period among the rates for the colored group. The rates for the two years were as follows:

	1921	1928
State-----	63	59
Urban-----	65	62
Rural-----	53	46
White-----	61	57
Colored-----	139	102

The maternal mortality rate from puerperal albuminuria and convulsions has shown a steadily downward trend from 1921 to 1928, being 22 per cent lower in 1928 (10.8) than in 1921 (13.8). The rate from puerperal septicemia, although fluctuating during this period, also was lower in 1928 (21.2) than in 1921 (24.8).

## NORTH CAROLINA

### STAFF AND ACTIVITIES IN 1929

Administrative agency: State board of health, bureau of maternity and infancy, Raleigh.

Funds expended: Federal, \$37,234.52; State, \$29,288.16; total, \$66,522.68.

Staff:

Director (physician), 5 nurses, 1 stenographer, 2 clerks (1 part year).  
Twenty-two county nurses were paid in part from maternity and infancy funds.

Activities:

Combined prenatal and child-health conferences conducted by physicians—3,436; expectant mothers registered and examined—675; infants and preschool children registered and examined—15,323; visits to conferences by expectant mothers—1,474; visits by children—20,586.

Defects found in children examined at conferences—6,083; children having defects—4,613. Parents had defects corrected in 3,030 of the children.

Conferences conducted by nurses, no physician present—many; infants and preschool children inspected—4,609; mothers instructed in prenatal care—474; visits to conferences by children—7,580; visits by mothers—663.

New permanent combined prenatal and child-health center—1 established as a result of the bureau's maternity and infancy work. It is supported by State and county funds.

Classes for midwives—7 organized; midwives enrolled—212; number completing course—158; lessons in course—6.

Home visits by nurses—49,671 (prenatal cases seen, 3,378; obstetrical cases, 2,793; postnatal cases, 5,375; infants, 8,028; preschool children, 6,187).

Literature distributed—315,856 pieces.

New names registered for prenatal letters—9,671; prenatal letters distributed—9,671 sets.

Breast feeding was stressed in the instruction given to mothers at conferences and in home visits, also in the literature on breast feeding and the postnatal letters distributed.

## Activities—Continued.

Infants born in the State during the calendar year 1928—80,887; infants under 1 year of age reached by the work of the bureau during the fiscal year ended June 30, 1929—46,726; preschool children reached—38,913; expectant mothers reached—30,048.

The bureau sends a postnatal letter and card for use in requesting literature on infant hygiene to parents of all infants whose births are registered in the State bureau of vital statistics.

Counties in the State—100; counties in which maternity and infancy work was done during the year—53; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—62.

The State boards of education and of welfare and the parent-teacher association cooperated in the bureau's work. They assisted with the child-health conferences and with the educational work among the midwives. Among the children examined at health conferences reported in the foregoing paragraphs were 7,053 examined in the "Get ready for school" campaign sponsored by the National Congress of Parents and Teachers.

The outstanding feature of the year's work was the number of health conferences conducted in which infants and preschool children were given physical examinations by physicians or were inspected by nurses.

## INFANT AND MATERNAL MORTALITY RATES

The general death rate for North Carolina was 9 per cent higher in 1928 (12.3) than in 1921 (11.3). The infant mortality rate in 1928 also was higher (15 per cent) than in 1921; in both urban and rural areas of the State and for both white and colored infants the rates were higher. The infant mortality rates were as follows:

State	1921	1928
State	75	86
Urban	97	110
Rural	72	81
White	66	75
Colored	95	109

The maternal mortality rates likewise were higher in 1928 than in 1921, with the exception of the rate in rural areas, which was slightly lower, as the following figures show:

State	1921	1928
State	73	78
Urban	120	145
Rural	68	67
White	61	67
Colored	102	105

## NORTH DAKOTA

## STAFF AND ACTIVITIES IN 1929

Administrative agency: State department of public health, division of child hygiene and public-health nursing, Bismarek.

Funds expended: Federal, \$11,500; State, \$1,500; total, \$13,000.

## Staff:

Director (physician), 1 physician (part year), 1 nurse, 2 stenographers (1 part year).

## Activities:

Combined prenatal and child-health conferences conducted by physicians—246; expectant mothers registered and examined—61; infants and preschool children registered and examined—7,226.

Defects found in children examined at conferences—8,704; children having defects—5,631.

Maternity homes and hospitals inspected—42; inspections made—42.

Infant home inspected—1; inspection made—1.

## Activities—Continued.

Surveys—4: (1) Of maternal mortality, in cooperation with the United States Children's Bureau and with the indorsement of the State medical society. (2) Of hospitals, state-wide. (3) Of midwives, state-wide. (4) Of birth registration, in 4 counties.

Campaign—1, in 4 counties, for more complete registration of births.

Talks and lectures—23.

Literature distributed—27,828 pieces.

Infants born in the State during the calendar year 1928—14,185; infants under 1 year of age reached by the work of the division during the fiscal year ended June 30, 1929—1,479 (exclusive of those reached by literature distributed); preschool children reached—5,747 (exclusive of those reached by literature distributed).

The division sends literature on infant hygiene to parents of all infants whose births are registered in the State bureau of vital statistics. Copies of a pamphlet on prenatal care were mailed also to all persons whose marriage was recorded in the State bureau of vital statistics during the year.

Counties in the State—53; counties in which maternity and infancy work was done during the year—34; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—47.

The following organizations cooperated in the division's work: American Red Cross, State federation of women's clubs, State tuberculosis association, American Legion auxiliary, the parent-teacher association, and homemakers' clubs. They assisted in organizing and in conducting conferences. Among the children examined at health conferences reported in the foregoing paragraphs were 1,053 examined in the "Get ready for school" campaign sponsored by the National Congress of Parents and Teachers.

Among the outstanding features of the year's work were the contacts made with 5,240 mothers, the examination of 7,226 preschool children at conferences, and the distribution of literature relating to maternal, infant, and child care and hygiene.

#### INFANT AND MATERNAL MORTALITY RATES

North Dakota was not admitted to the United States birth-registration area until 1924. Mortality rates of earlier years therefore are not available for comparison with those of 1928.

The general death rate and the infant mortality rate in 1928 were lower for the State (8.6 and 59, respectively) than for the birth-registration area (12 and 69). The infant mortality rate for the State as a whole was also lower in 1928 (59) than in 1924 (67), as were the rates for both urban and rural areas. The rate for urban areas was 68 in 1924 and 50 in 1928; that for rural areas was 67 in 1924 and 61 in 1928. The State rate and the rural rate in 1928 were the lowest that occurred during the period 1924 to 1928. The lowest urban rate of the period (47) occurred in 1927.

The maternal mortality rate in 1928 was lower for the State (57) than for the birth-registration area (69). The rate for the State was the same as in 1924. For rural areas it was slightly higher in 1928 (58) than in 1924 (51), but for urban areas it was lower in 1928 (54) than in 1924 (100). In connection with this very large apparent decrease in the urban rate it must be remembered that as North Dakota is largely rural, the number of births in urban areas is small, so that a very small variation in the actual number of deaths may affect the rate materially.

#### OHIO

##### STAFF AND ACTIVITIES IN 1929

Administrative agency: State department of health, division of child hygiene, Columbus.

Funds expended: Federal, \$26,581.70; State, \$18,585.57; total, \$45,167.27.

Staff: Director (physician, director of another division of the State department of health serving), 1 physician, 6 nurses (1 part time, 5 part year), 2 assistants in health education, 1 lecturer, 1 statistician, 1 chief of publicity (part year, part time), 1 financial clerk (part year, part time), 1 clerk. Six county nurses were paid in part from maternity and infancy funds.

## Activities:

Child-health conferences conducted by physicians—92; infants and preschool children registered and examined—4,343. The examination of preschool children and correction of their defects before the children enter school has developed into an integral part of the work of most local health departments. The plan of the division is to stimulate the examination of all preschool children by their own family physicians.

Defects found in children examined at conferences—16,463; children having defects—4,240.

Conferences conducted by nurses, no physician present—26; infants and preschool children inspected—185.

Home visits by nurses—6,364 (prenatal cases seen, 291; infants, 1,757; preschool children, 1,487).

Maternity homes and hospitals inspected—183; inspections made—183.

Group demonstrations—2, of the method of conducting health conferences for preschool children.

Talks and lectures—1,052.

Literature distributed—242,000 pieces.

Nutrition work was done through the instruction given to mothers at conferences and in home visits.

Exhibits conducted—19, at the State and county fairs and at an industrial exposition. Exhibit material prepared—films and posters. Exhibit material was lent four times.

Breast feeding was stressed in the instruction given to mothers in home visits.

Infants born in the State during the year—approximately 112,000.

The division does not send literature on infant hygiene to parents of infants whose births are registered in the State bureau of vital statistics, as nearly all local boards of health mail or deliver such literature with the birth certificates upon receipt of the birth notice.

Counties in the State—88; counties in which maternity and infancy work was done during the year—37; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—82.

Since the beginning of the State's cooperation under the maternity and infancy act six counties and two cities have assumed the responsibility for maternity and infancy work begun with maternity and infancy funds. Three additional counties were ready to assume such responsibility at the close of the year under review.

The division rendered advisory and supervisory service to local organizations doing child-health work.

The following organizations cooperated in the division's work: American Red Cross, State public-health association, State federation of women's clubs, business and fraternal clubs, and the parent-teacher association. They gave financial assistance and stimulated interest in conferences for preschool children. All the children examined at health conferences reported in the foregoing paragraphs were examined in the "Get ready for school" campaign sponsored by the National Congress of Parents and Teachers.

Among the outstanding features of the year's work was the active participation of local boards of health in the child-hygiene program. According to annual reports from local health departments 23 per cent of the nursing service in rural communities and 51 per cent in cities was in connection with child hygiene.

## INFANT AND MATERNAL MORTALITY RATES

The general death rate for Ohio was 4 per cent higher in 1928 (11.7) than in 1921 (11.3). The infant mortality rates, however, were considerably lower in 1928 than in 1921, as the following table shows:

Area	Deaths of infants under 1 year of age per 1,000 live births		
	1921	1928	Percentage of difference
State.....	75	66	-12
Urban.....	76	70	-8
Rural.....	73	61	-16
White.....	73	64	-12
Colored.....	122	113	-7

The lower State rate in 1928 means saving 1,078 infant lives; that is, if the 1921 rate had prevailed in 1928 there would have been 9,031 deaths of infants under 1 year of age instead of 7,953. The greatest difference in the infant mortality rates was in the rate from gastrointestinal diseases, which was 54 per cent lower in 1928 (7) than in 1921 (15.2). The lowest rate from this group of diseases during the period 1921 to 1928 occurred in 1927, when it was 6.6.

The maternal mortality rate for the State in 1928 was considerably lower than in 1921, as the following figures show:

	1921	1928
State.....	72	64
Urban.....	85	77
Rural.....	55	45
White.....	71	62
Colored.....	116	106

The lower State rate in 1928 means a saving of 8 mothers for every 10,000 live births. If the 1921 rate had prevailed in 1928, the number of mothers dying from puerperal causes would have been 869 instead of 772.

## OKLAHOMA

### STAFF AND ACTIVITIES IN 1929

Administrative agency: State department of public health, bureau of maternity and infancy, Oklahoma City.

Funds expended: Federal, \$29,487.29; State, \$18,679.48; total, \$48,166.77.

#### Staff:

Director (physician, 10½ months), acting director (nurse, 1½ months), 2 physicians (part year), 5 nurses, 1 stenographer, 3 clerks. Four county nurses were paid in part from maternity and infancy funds. Additional professional and clerical assistants were employed as needed.

Volunteer assistants—34 physicians, 6 dentists, 461 lay persons.

#### Activities:

Child-health conferences conducted by physicians—144; infants and preschool children registered and examined—4,978.

Defects found in children examined at conferences—19,344; children having defects—4,587. Only 1,766 children were followed up to see if defects had been corrected. Parents had had defects corrected in 289 of these children.

Dental conferences—6; preschool children receiving dental examination—496.

Classes for girls in care of infants and preschool children—7 organized; girls enrolled and completing course—102; lessons in course—17.

Classes for student nurses in care of mothers and children—2 organized at 2 hospitals; nurses enrolled and completing course—51; lessons in course—20.

Home visits by nurses—2,296 (prenatal cases seen, 153; obstetrical cases, 3; postnatal cases, 84; infants, 637; preschool children, 2,442).

Community demonstrations—3, of saving babies from summer diarrhea through a program of child-health conferences, preschool surveys, and intensive follow-up work. The purpose was to reduce the high death rate due to insanitary conditions and other causes in one county and to show in another how best to use a county nurse as the sole health worker in addition to the part-time county health officer. The demonstration in one county continued 11 months, in each of the other counties 6 months.

Group demonstrations—74, on the need for physical examination, hygiene of pregnancy, preparation for home confinement, care of infants, oral hygiene, and other phases of maternal, infant, and child care, to groups of farm women, city clubs, and other groups, totaling 2,613 persons.

Surveys—3: (1) Of maternal mortality, state-wide, in cooperation with the United States Children's Bureau and with the indorsement of the State medical association. (2) Of hospitals, in 76 counties. (3) Of midwives, in one county.

Campaigns—2: (1) For pure milk supply, in two counties. (2) For pure water supply, in two counties.

Talks and lectures—323, to audiences totaling 18,214 persons.

Literature prepared—Outlines in Child Care (used in the Indian boarding schools), report of the bureau's work, 1924 to 1928.

## Activities—Continued.

Literature distributed—352,503 pieces.

New names registered for prenatal letters—6,697; prenatal letters distributed—10,035 sets.

Nutrition work was done through the demonstrations made, the talks given by members of the bureau's staff, and the literature distributed.

Exhibits conducted—82, at State and county fairs and at various meetings. Exhibit material was lent 20 times.

Article prepared—Does It Pay to Neglect the Mothers?

Statistical studies made—age groups of life hazards under 6 years of age, causes of death of 4,308 of the 5,116 children who died under 6 years of age in 1927, children with physical defects who repeated their grade in school, comparative study of public-health funds, the 11 chief causes of death in Oklahoma in 1927.

Breast feeding was stressed in the literature distributed, in talks given, and in the demonstrations made. It was estimated that approximately 85 per cent of the infants in the State are breast fed.

Infants born in the State during the year—47,055; infants under 1 year of age reached by the work of the bureau—11,825; preschool children reached—9,217; expectant mothers reached—9,798.

Counties in the State—77; counties in which maternity and infancy work was done during the year—76; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—77.

The baby rodeo, a child-health conference organized at a large ranch in Ponca City, was held during four days in May, 1929. Children of preschool age were eligible for examination, the limit of enrollment being 400. Specialists from Oklahoma and other States made the examinations and held consultations. Many of the children who had also been present at previous rodeos had improved markedly in physical condition. A larger number of children were found to be without physical defects in 1929 than in the previous years. A special clinic for crippled children was held under the auspices of the Oklahoma Society for Crippled Children during one of the four days.

A training course for nurses was held in connection with the conferences of the baby rodeo. Senior students as well as graduate nurses were permitted to make the rounds of the conference rooms, working under the supervision of the nurse in charge of each department in order to learn the method of history taking, weighing, and measuring, and to observe the various types of examination. Forty-six nurses were present on one or more days of the conferences.

The following organizations cooperated in the bureau's work: State agricultural and mechanical college (rural-extension division), State league of women voters, State federation of women's clubs, and the parent-teacher association. Among the children examined at health conferences reported in the foregoing paragraphs were 553 examined in the "Get ready for school" campaign sponsored by the National Congress of Parents and Teachers.

Among the outstanding features of the year's work were the maternal mortality study, the child-health conferences in rural areas, and the work accomplished in connection with the baby rodeo.

#### INFANT AND MATERNAL MORTALITY RATES

Oklahoma was not admitted to the United States birth-registration area until 1928. Mortality rates of earlier years, therefore, are not available for comparison.

The general death rate for the State in 1928 (8.6) was 28 per cent lower than the rate for the birth-registration area (12), but the infant mortality rate (69) was the same as that for the area. This high rate is due largely to the rate for colored infants (131), the rate for white infants being 65. The colored group includes Negroes and Indians. The rates for both races were high, that for Negro infants being 127 and that for Indian infants being 140. The rate for urban areas of the State was 78; for rural areas it was 67.

The maternal mortality rate for the State in 1928 (71) was higher than that for the birth-registration area (69). This rate also was influenced by the rate for colored mothers (194), the rate for white mothers being 64. For urban areas the rate was 118; for rural areas it was 60.

## OREGON

## STAFF AND ACTIVITIES IN 1929

Administrative agency: State board of health, bureau of child hygiene, Portland.  
Funds expended: Federal, \$13,915.12; State, \$4,327.73; total, \$18,242.85.

## Staff:

Director (State health officer serving), 1 physician (part year, part time), 1 prenatal supervisor (nurse), 2 nurses (part year), 2 stenographers (part year). Other clerical and stenographic assistants were employed as needed. Fifteen county nurses in six counties were paid in part from maternity and infancy funds.

Volunteer assistants—55 physicians, 30 dentists, 5 nurses.

## Activities:

Child-health conferences conducted by physicians—208; infants and preschool children registered—2,315; number examined—2,220; visits to conferences—2,810.

Defects found in children examined at conferences—2,710; children having defects—1,478. Parents had defects corrected in 216 of the children.

Prenatal conferences conducted by physicians—209; expectant mothers registered and examined—928; visits to conferences—1,654.

Conferences conducted by nurses, no physician present—21; infants and preschool children inspected—69.

Dental conferences—41; expectant mothers receiving dental examination—3; preschool children receiving dental examination—1,523.

New permanent child-health centers—9 established as a result of the bureau's maternity and infancy work. They are supported by local funds.

Classes for girls in care of infants and preschool children—20 organized; girls enrolled—304; number completing course—257; lessons in course—10. A series of classes for boys in personal hygiene and care of infants was held in one county.

Classes for mothers—7 organized; mothers enrolled—88; number completing course—80; lessons in course—12.

Home visits by nurses—5,030 (prenatal cases seen, 690; obstetrical cases, 146; postnatal cases, 421; infants and preschool children, 2,336).

Group demonstrations—261, on various phases of maternal and infant care.

Surveys—2: (1) Of tuberculosis among preschool children, in one county.

(2) Dental survey of preschool children, in two counties.

The bureau continued its cooperation with the United States Children's Bureau in a study of maternal mortality. (See pp. 117, 123).

Campaigns—3: (1) For immunization against diphtheria, in five counties.

(2) For correction of dental defects, in two counties. (3) For observance of May Day as Child Health Day, state-wide.

Talks and lectures—248 (report incomplete).

Literature distributed—approximately 50,000 pieces.

New names registered for prenatal letters—1,200; prenatal letters distributed—1,197 sets.

Nutrition work was done through individual instruction to mothers at conferences and in home visits and through talks given to groups.

Exhibits conducted—52. Exhibit material was lent 50 times. All the nurses were supplied with exhibit material consisting of posters and clothing and other articles for the baby.

Articles prepared—several press releases on child hygiene.

Breast feeding was stressed in all talks, classes, and conferences and in the literature distributed. It was estimated that 85 per cent of the infants in the State are breast fed.

Infants under 1 year of age reached by the work of the bureau—approximately 10,000 (including those reached by letters accompanying notification of registration of birth), preschool children reached—approximately 2,500; expectant mothers reached—approximately 3,000.

The bureau sends to parents of all infants whose births are registered in the State bureau of vital statistics a notification of registration of birth, accompanied by a letter offering guidance in the care of young children.

Counties in the State—36; counties in which maternity and infancy work was done during the year—29; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—36.

Since the beginning of the State's cooperation under the maternity and infancy act one county has assumed the responsibility for maternity and infancy work begun with maternity and infancy funds.



## Activities—Continued.

Arrangements were made whereby the special instruction in prenatal care begun with maternity and infancy funds by the University of Oregon medical school and the Portland Free Dispensary will be continued by the university.

As a result of the bureau's work, interest in child hygiene has increased throughout the State. Many health conferences, classes, demonstrations, and campaigns were conducted under local auspices.

The bureau rendered advisory and supervisory service to local agencies doing child-health work.

The following organizations cooperated in the bureau's work: State department of education, State university and agricultural college (extension services), American Red Cross, State medical, dental, and tuberculosis associations, State organization for public-health nurses, State federation of women's clubs, and the parent-teacher association. Among the children examined at health conferences reported in the foregoing paragraphs were 207 examined in the "Get ready for school" campaign sponsored by the National Congress of Parents and Teachers.

Among the outstanding features of the year's work were the efforts to have local organizations assume the responsibility for work begun with maternity and infancy funds.

## INFANT AND MATERNAL MORTALITY RATES

The general death rate for Oregon was 12 per cent higher in 1928 (11.6) than in 1921 (10.4). The infant mortality rate, however, was 8 per cent lower in 1928 (47) than in 1921 (51). The 1928 rate was the lowest recorded for the State and lower than that for any other State in the birth-registration area. Both urban and rural areas had lower rates in 1928 than in 1921, the rate for urban areas being 50 in 1921 and 44 in 1928, and the rate for rural areas being 52 in 1921 and 49 in 1928.

The maternal mortality rate for the State was lower in 1928 (61) than in 1921 (74), as were the rates for urban and rural areas. In urban areas the rates were 63 in 1928 and 73 in 1921 and in rural areas 60 in 1928 and 75 in 1921.

## PENNSYLVANIA

## STAFF AND ACTIVITIES IN 1929

Administrative agency: State department of health, bureau of child health, pre-school division, Harrisburg.

Funds expended: Federal, \$80,404.80; State, \$63,810.99; total, \$144,215.79.

## Staff:

Director (physician), 4 physicians (part year), 4 dental hygienists (part year), 2 supervisors of midwives (physicians), 3 field workers, 14 vital-statistics clerks, 3 stenographers (part year), 6 clerks (3 part year). Three community nurses and approximately 135 nurses in the public-health nursing division of the State department of health were paid in part from maternity and infancy funds.

Volunteer assistants—many physicians, nurses, and lay persons.

## Activities:

Child-health conferences conducted by physicians—5,322 (5,198 at child-health centers, 124 on the health cars); infants and preschool children registered and examined—16,706 (9,854 at health centers, 6,852 on the health cars); visits to conferences—76,153 (69,301 to health centers, 6,852 to the health cars).

Correction was secured for 14,230 defects found in children examined at health centers.

Prenatal conferences conducted by physicians—300; expectant mothers registered and examined—364; visits to conferences—1,556.

The division gave advisory service and furnished literature and record blanks to child-health centers and prenatal centers supported by other agencies, at which physicians conducted 9,607 child-health conferences (examining 24,445 infants and preschool children) and 4,109 prenatal conferences (at which 13,997 expectant mothers were registered). Infants and preschool children made 213,993 visits to these conferences, and expectant mothers made 66,143 visits.

## Activities—Continued.

New permanent child-health centers—17 established as a result of the division's maternity and infancy work. The nursing service of 2 of these centers is supported by State funds, that of 15 by funds from other agencies. New permanent prenatal center—1 established.

Instruction and supervision of midwives in 10 counties in the coal region of the State were continued as in previous years; 507 midwives who attended 5,989 deliveries in 1928 were under supervision; 10 maternal deaths occurred among the women attended by them (a maternal mortality rate of less than 2 per 1,000 deliveries). All deaths from causes associated with childbirth reported for mothers whom a midwife had attended at any time during the labor were counted as deaths in the midwife's practice even though a physician was called later and signed the death certificate. Two institutes for midwives were held.

Home visits by nurses—47,223 (prenatal cases seen, 944; postnatal cases, 10,255; infants, 9,343; preschool children, 5,357).

Community demonstrations—13, of a maternity and infancy public health nursing program.

Campaign—1, for observance of May Day as Child Health Day, state-wide. Members of the division's staff helped plan and organize local celebrations, emphasis being placed on health conferences for preschool children. A total of 454 conferences were held; and 16,059 children were examined at 354 of these conferences.

Talks and lectures—74.

Literature prepared (revisions)—Health-Center Technique, Baby Book, diet cards.

Literature distributed—433,575 pieces.

Exhibit conducted—1, at a farm show, of the health car (a "motorized health center"). Educational films were shown 51 times.

Articles prepared—Infant Mortality in Pennsylvania; Health-Car Work in Pennsylvania; The Preschool Child; Before Birth.

Statistical studies made—findings in physical examinations made on the health car; midwife work for 1928 and half of 1929; comparative statistics in midwifery, July 1, 1922, to June 30, 1929; sepsis and maternal deaths in the practice of midwives, 1923 to 1928, inclusive.

Infants born in the State during the calendar year 1928—200,786; infants under 1 year of age reached by the work of the division during the fiscal year under review (exclusive of those reached by literature distributed)—23,005; preschool children reached (exclusive of those reached by literature distributed)—24,460; expectant mothers reached (exclusive of those reached by literature distributed)—1,308.

The division sends literature on infant hygiene to parents of all infants whose births are registered in the State bureau of vital statistics.

Counties in the State—67; counties in which maternity and infancy work was done during the year—67.

Since the beginning of the State's cooperation under the maternity and infancy act seven communities have assumed the responsibility for maternity and infancy work begun with maternity and infancy funds. One county made arrangements to assume such responsibility at the close of the year under review.

The following organizations cooperated in the division's work: State departments of public instruction and of public welfare, American Red Cross, State league of women voters, State federation of women's clubs, State tuberculosis association, and the parent-teacher association. They assisted with the May Day campaign, provided opportunities for members of the division's staff to speak at conventions and institutes, conferred with the director of the division concerning plans of work, and lent support to the standards for maternity and infancy work set by the division.

Among the outstanding features of the year's work were the results of a campaign for the observance of May Day as Child Health Day, the holding of successful institutes for midwives, the success of the health-car work, and the increase in the distribution of the division's booklet, *Manual for Expectant Mothers*.

#### INFANT AND MATERNAL MORTALITY RATES

The general death rate for Pennsylvania was 12.1 in the year 1928 and 12.4 in 1921. The infant mortality rate for the State was definitely lower in 1928 (72) than in 1921 (88). The lowest rate recorded in the State was 69 in 1927.

The rates for both urban and rural areas and for white and colored infants were significantly lower in 1928 than in 1921, as the following table shows:

Area	Deaths of infants under 1 year of age per 1,000 live births		
	1921	1928	Percentage of difference
State.....	88	72	-18
Urban.....	86	74	-14
Rural.....	89	70	-21
White.....	86	70	-19
Colored.....	134	116	-13

If the 1921 rate had prevailed in 1928, there would have been 16 more infant deaths for every 1,000 live births; in other words, 3,201 infants survived in 1928 who would have died under conditions existing in 1921.

The infant mortality rate from gastrointestinal diseases has shown a definite downward trend through the period 1921 to 1928. This rate was 56 per cent lower in 1928 (9.4) than in 1921 (21.5). The rates from natal and prenatal causes were also definitely downward, although the difference between the 1928 and the 1921 rate is not so great as in the case of gastrointestinal diseases. The rate from natal and prenatal causes was 10 per cent lower in 1928 (34.7) than in 1921 (38.6).

The maternal mortality rate was also definitely lower in 1928 than in 1921, this difference being especially notable in the rural areas of the State, as the following table shows:

Area	Deaths of mothers from causes associated with pregnancy and childbirth per 10,000 live births		
	1921	1928	Percentage of difference
State.....	68	61	-10
Urban.....	84	79	-6
Rural.....	52	43	-17
White.....	67	60	-10
Colored.....	98	84	-14

The 1928 maternal death rate was the lowest since the State has been in the birth-registration area. For every 10,000 live births in 1928, 7 mothers survived who would have died if the 1921 rate had prevailed—a total saving of 147 mothers. In the rural areas of the State 92 mothers survived who would have died if 1921 conditions had prevailed.

The greatest difference in the maternal mortality rates was in the rate from puerperal albuminuria and convulsions, which was 22 per cent lower in 1928 (13.5) than in 1921 (17.4). The rate from puerperal septicemia was also lower in 1928 (23.7) than in 1921 (29.1) by 19 per cent, but it showed more fluctuation during the period than the rate from puerperal albuminuria and convulsions.

The State child-hygiene program was well under way at the time of the passage of the Federal maternity and infancy act, a bureau of child health having been established in the State department of health in 1919. Federal funds made expansion of the program possible; this has included assisting the development of child-health centers, conducting itinerant child-health conferences, and giving close supervision to midwives. The contribution of Federal funds for maternity and infancy work to the nursing service which covers the State has been an important feature of the program. The effects of the program are clearly reflected in the saving of lives of mothers and infants in the later years of the administration of the maternity and infancy act.

## RHODE ISLAND

## STAFF AND ACTIVITIES IN 1929

Administrative agency: State board of health, division of child welfare, Providence.

Funds expended: Federal, \$19,076.28; State, \$9,076.28; total, \$28,152.56.

## Staff:

Director (physician), 9 nurses (3 part year), 1 field secretary, 1 stenographer.

Nurses from other organizations were paid on a part-time basis to make home visits to infants and preschool children.

Volunteer assistants—3 physicians, 1 nurse.

## Activities:

Child-health conferences conducted by physicians—226; infants and preschool children registered—728; number examined—409; visits to conferences—3,682.

Defects found in children examined at conferences—816; children having defects—716. Parents had defects corrected in 381 of the children.

New permanent child-health centers—2 established as a result of the division's maternity and infancy work. They are supported by State funds and local private funds.

New permanent prenatal center—1 established as a result of the division's maternity and infancy work. It is supported by local private funds.

There are only 55 midwives in the State, 31 of whom are in Providence and are supervised by the city board of health. The field secretary made 88 visits to midwives in other parts of the State.

Home visits by nurses—59,619 (53,281 by staff nurses, 6,338 by the nurses of other organizations employed to make visits; prenatal cases seen, 1,222; infants, 7,522; preschool children, 14,575).

The division continued its cooperation with the United States Children's Bureau in a study of maternal mortality. (See pp. 117, 123).

Campaign—1 (continued from the previous year), for immunization of preschool children against diphtheria.

Talks and lectures—28.

Literature prepared—Baby's Record (booklet).

Literature distributed—42,776 pieces.

Nutrition work was done through individual instruction given by the nurses in home visits.

Exhibits conducted—2, at the State fair and Better Homes Week. Exhibit material prepared—model of playground, model of proper food for children. Exhibit material was lent 5 times.

Breast feeding was stressed in the instruction given to mothers at conferences and in home visits.

Infants born in the State during the year—12,520; infants under 1 year of age reached by the work of the division—7,522; preschool children reached—18,363; expectant mothers reached—7,289.

The division supplies literature on infant hygiene to all nursing organizations in the State, to be distributed locally by their members.

Counties in the State—5; counties in which maternity and infancy work was done during the year—5.

As a result of the division's work one local community established a child-hygiene program, receiving only advisory service, literature, and record cards from the division.

The State board of education and the parent-teacher association cooperated in the division's work. They assisted in maintaining health centers and in arranging programs for the observance of May Day as Child Health Day.

Among the outstanding features of the year's work were the number of home visits made and the number of preschool children immunized against diphtheria as a result of the division's immunization campaign.

## INFANT AND MATERNAL MORTALITY RATES

Rhode Island began cooperation with the Federal Government under the maternity and infancy act in 1925.

The general death rate for the State in 1928 (11.7) was 7 per cent lower than in 1921 (12.6). The infant mortality rate was 28 per cent lower in 1928 (67) than in 1921 (93). The rates for both urban and rural areas were lower also; the rate for urban areas was 68 in 1928 and 94 in 1921, and that for rural areas was 64 in 1928 and 86 in 1921.

The maternal mortality rates were lower in 1928 than in 1921. The rate for the State was 60 in 1928 and 71 in 1921; for urban areas it was 66 in 1928 and 76 in 1921; for rural areas it was 22 in 1928 and 39 in 1921.

As Rhode Island is predominantly urban, the small number of births in rural areas must be taken into consideration in connection with the maternal mortality rates, as the rate may be changed materially by a small increase or decrease in the actual number of maternal deaths.

The division of child welfare has been able to make regular supervision of the infants in the State a marked feature of the State child-hygiene work. The study of maternal mortality begun in 1927 attracted attention to the benefit of prenatal care.

## SOUTH CAROLINA

### STAFF AND ACTIVITIES IN 1929

Administrative agency: State board of health, bureau of child hygiene and public-health nursing, Columbia.

Funds expended: Federal, \$39,988; State, \$16,333.91; total, \$56,321.91.

#### Staff:

Director (nurse), 3 physicians (part time, 2 part year), 12 nurses (7 part year), 1 dentist (1 month), 1 vital-statistics clerk, 2 stenographers. One county nurse was paid from maternity and infancy funds for 10 months.

#### Activities:

Child-health conferences conducted by physicians—119; infants and preschool children registered and examined—2,944.

Defects found in children examined at conferences—3,672; children having defects—2,234.

Prenatal conferences conducted by physicians—45; expectant mothers registered and examined—537.

Conferences conducted by nurses, no physician present—2; mothers instructed in prenatal care—14.

Dental conferences—25; preschool children receiving dental examination—296.

New permanent combined prenatal and child-health center—1 established as a result of the bureau's maternity and infancy work. It is supported by private funds.

New permanent child-health center—1 established as a result of the bureau's maternity and infancy work. It is supported by private funds.

New permanent prenatal center—1 established as a result of the bureau's maternity and infancy work. It is supported by private funds.

Classes for girls in care of infants and preschool children—28 organized; girls enrolled—835; number completing course—734; lessons in course—13.

Classes for mothers—42 organized; mothers enrolled (plus those carried over from the previous year)—744; number completing course—556; lessons in course—18.

Classes for midwives—25 organized; midwives enrolled (plus those carried over from the previous year)—469; number completing course—226; lessons in course—10. The institute for midwives, which opened in June, 1928, was continued for two months in the fiscal year under review.

Seventy-five midwives completed the course and were given certificates.

Home visits by nurses—9,114 (prenatal cases seen, 644; postnatal cases, 270; infants, 976; preschool children, 3,891).

Community demonstrations—16, of a maternity and infancy public health nursing program, in 16 counties.

Group demonstrations—143, usually of method of bathing and dressing the baby, to the classes for midwives, mothers, and girls and at other group meetings.

Campaigns—2: (1) For complete registration of births. (2) For immunization against diphtheria. Both were state-wide.

Talks and lectures—293.

Literature distributed—40,436 pieces.

Prenatal letters distributed—42 sets.

Nutrition work was done through the instruction given in the classes for mothers and girls.

## Activities—Continued.

Exhibit conducted—1, at the State fair, of posters and literature. Exhibit material prepared—posters. Exhibit material was lent 12 times.

Articles prepared—a series of 8 releases on the prevention of diphtheria.

Infants born in the State during the year—41,820; infants under 1 year of age reached by the work of the bureau—29,178; preschool children reached (exclusive of those reached by literature distributed)—9,346; expectant mothers reached—2,615.

The bureau sends literature on infant hygiene to parents of all infants whose births are registered in the State bureau of vital statistics.

Counties in the State—46; counties in which maternity and infancy work was done during the year—46.

Since the beginning of the State's cooperation under the maternity and infancy act 26 counties have assumed the responsibility for maternity and infancy work begun with maternity and infancy funds.

As a result of the bureau's work county nurses and also nurses employed by private organizations organized child-health and prenatal conferences, toxin-antitoxin clinics, and classes for girls, mothers, and midwives.

The director gave advisory assistance to organizations doing child-health work by serving on their child-health committees. Staff nurses assisted on request in child-health projects undertaken by local communities.

The following organizations cooperated in the bureau's work: State Federation of women's clubs, American Red Cross, State league of women voters, Council of Farm Women, and the parent-teacher association. They assisted in the campaigns and health conferences and in giving publicity to the bureau's work.

The outstanding feature of the year's work was the institute for midwives.

## INFANT AND MATERNAL MORTALITY RATES

The general death rate for South Carolina was 10 per cent higher in 1928 (13.1) than in 1921 (11.9). The infant mortality rate, however, was practically the same in 1928 as in 1921, though there were decreases in the rates for colored infants and for infants in urban areas. The rates were as follows:

	1921	1928
State.....	96	97
Urban.....	127	117
Rural.....	92	94
White.....	69	78
Colored.....	123	115

The maternal mortality rate in 1928 was higher than in 1921, although a decrease was apparent in the rate for urban areas, as the following figures show:

	1921	1928
State.....	98	109
Urban.....	178	170
Rural.....	88	100
White.....	78	88
Colored.....	118	129

## SOUTH DAKOTA

## STAFF AND ACTIVITIES IN 1929

Administrative agency: State board of health, division of child hygiene, Waubay.  
Funds expended: \$7,674.82 (all Federal).

## Staff:

Director (nurse), 1 physician (part time, part year), 2 nurses (1 for 1 month, 1 for 3 months).

## Activities:

Combined prenatal and child-health conferences conducted by physicians—90; expectant mothers registered and examined—108; infants and pre-school children registered and examined—3,102.

Defects found in children examined at conferences—12,370; children having defects—2,863.

Classes for mothers—9 organized; mothers enrolled and completing course—106; lessons in course—7.

Maternity homes inspected—58; inspections made—75.

Community demonstration—1, of maternity work and health work for pre-school children, in one county.

Survey—1, of maternity homes and hospitals, state-wide.

Campaign—1, for observance of May Day as Child Health Day, state-wide.

Talks and lectures—26.

Literature distributed—34,741 pieces.

New names registered for prenatal letters—675; prenatal letters distributed—785 sets.

Nutrition work was done through group and individual instruction and through literature distributed (including approximately 3,500 copies of a leaflet, Food for the Growing Child).

Exhibits conducted—7, consisting of models or posters. Exhibit material prepared—House of Health, and Food Basket. Exhibit material was lent 10 times.

Articles prepared—No Diphtheria in 1930, May Day, State Fair Boys' and Girls' Club Clinic.

Statistical study made—births, by attendant at birth; stillbirths; deaths of infants under 1 month and under 5 years of age, by causes; deaths of mothers from causes associated with childbirth.

Breast feeding was stressed at conferences and in the literature distributed.

It was estimated that 71 per cent of the infants in the State are breast fed.

Infants born in the State during the year—15,162; infants under 1 year of age reached by the work of the division—14,223; preschool children reached, 2,377 (report incomplete); expectant mothers reached—845.

The division sends literature on infant hygiene to parents of all infants whose births are registered in the State bureau of vital statistics.

Counties in the State—64 organized, 5 unorganized (largely of Indian population); counties in which maternity and infancy work was done during the year—64 organized, 1 unorganized.

Since the beginning of the State's cooperation under the maternity and infancy act two counties have assumed the responsibility for maternity and infancy work begun with maternity and infancy funds.

As a result of the division's work, local agencies have sponsored health conferences and other child-health activities.

The division gave advisory and supervisory assistance to public-health nurses and organizations doing child-health work.

The following organizations cooperated in the division's work: State college of agriculture (extension service), State medical and dental associations, State nurses' association, State federation of women's clubs, State league of women voters, State public-health association, American Legion auxiliary, the parent-teacher association, colleges, and normal schools. The assistance given included sponsoring health conferences and helping with May Day activities.

## INFANT AND MATERNAL MORTALITY RATES

South Dakota has not been admitted to the United States birth-registration area nor to the death-registration area. Figures, therefore, are not available from the United States Bureau of the Census for comparison of infant or maternal mortality rates.

## TENNESSEE

## STAFF AND ACTIVITIES IN 1929

Administrative agency: State department of public health, division of child hygiene and public-health nursing, Nashville.

Funds expended: Federal, \$44,958.09; State, \$36,477.97; total, \$81,436. 06.

## Staff:

Director (physician, part time ), 5 physicians (4 part year), 7 nurses (1 part time, 5 part year), 1 supervisor of midwives (physician), 3 statistical clerks (2 months), 1 accountant, 1 stenographer. Forty-three county nurses in 23 counties were paid in part from maternity and infancy funds.

## Activities:

Child-health conferences conducted by physicians—593; infants and preschool children registered and examined—5,791.

Defects found in children examined at conferences—4,310; children having defects—3,748. Parents were known to have had defects corrected in 339 of the children (report incomplete).

Prenatal conferences conducted by physicians—12; expectant mothers registered and examined—80; visits to conferences—360.

Conferences conducted by nurses, no physician present—276; infants and preschool children inspected—749; mothers instructed in prenatal care—150; visits to conferences by children—3,591; visits by mothers—309.

New permanent combined prenatal and child-health centers—2 established as a result of the division's maternity and infancy work. They are supported by local funds.

Classes for girls in care of infants and preschool children—26 organized; girls enrolled—345; number completing course—315; lessons in course—10.

Classes for mothers—5 organized; mothers enrolled (plus those carried over from the previous year)—145; lessons in course—8. Classes were not completed at the close of the year under review.

Classes for midwives—3 organized; midwives enrolled (plus those carried over from the previous year)—602; number completing course—142; lessons in course—8. In addition, local health departments had 158 midwives under supervision and conducted 98 class meetings.

Home visits by nurses—17,147 (prenatal cases seen, 1,252; obstetrical case, 1; postnatal cases, 1,278; infants, 5,408; preschool children, 7,571).

Group demonstrations—379, of physical examinations and various phases of infant care.

Survey—1, of midwives, in 4 counties. Assistance was given in a survey of sanitary conditions and in the relief work done by the State department of public health following a flood in 12 counties.

Campaign—1, for immunization of preschool children against diphtheria. The staff of the division organized the work in 25 counties and immunized 5,892 children under 7 years of age in addition to the several thousand other preschool children immunized by other divisions of the State department of health and by local health departments.

Talks and lectures—1,655.

Literature prepared—Bed Wetting; Intestinal Parasites.

Literature distributed—53,176 pieces.

New names registered for prenatal letters—809; prenatal letters distributed—809 sets.

A graduate course in pediatrics for physicians was given as part of a course for county health officers conducted in cooperation with Vanderbilt Medical College.

Exhibits conducted—90, at the State fair, State medical association meeting, and local meetings. Exhibit material was lent 10 times.

Breast feeding was stressed in instruction given to individual mothers and in the literature distributed.

Infants born in the State during the year—48,456; infants and preschool children reached by the work of the division (exclusive of those reached by literature distributed)—19,519; expectant mothers reached—1,445.

Counties in the State—95; counties in which maternity and infancy work was done during the year—71; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—95.

The division rendered advisory service to local organizations doing maternity and infancy work.



Activities—Continued.

The State medical society (through its liaison committee) and the parent-teacher association cooperated in the division's work. The former endorsed the campaign for immunization of children against diphtheria, and the latter assisted with child-health conferences. Among the children examined at health conferences reported in the foregoing paragraphs were 285 examined in the "Get ready for school" campaign sponsored by the National Congress of Parents and Teachers.

An outstanding feature of the year's work was the campaign for the immunization of preschool children against diphtheria.

INFANT AND MATERNAL MORTALITY RATES

Tennessee was not admitted to the United States birth-registration area until 1927. Mortality rates of earlier years, therefore, are not available for comparison with those of 1928.

The general death rate for the State in 1928 (12.6) was slightly higher than that for the birth-registration area (12). The infant mortality rate for 1928 (81) was also higher than that for the area (69). The rate for the State was affected by the high rate for colored infants (121), although the rate for white infants in the State (73) was also higher than that for the birth-registration area (64). The 1928 rates for urban and rural areas were 98 and 75 respectively.

The maternal mortality rate for the State in 1928 (89) was higher than that for the birth-registration area (69). As in the case of infant mortality, the rate was influenced by the high rate for colored mothers, which was 153, whereas the rate for white mothers was 76. The rate for urban areas was 136, and that for rural areas was 74.

TEXAS

STAFF AND ACTIVITIES IN 1929

Administrative agency: State department of health, bureau of child hygiene, Austin.

Funds expended: Federal, \$41,425.83; State, \$35,661.77; total, \$77,087.60.

Staff:

Director (physician), 6 nurses (2 part year), 1 inspector of maternity and infant homes, 1 secretary, 3 vital-statistics clerks (part year, 2 part time), 4 stenographers, 2 clerks (part time, 1 part year). Twenty-seven county nurses were paid for half-time maternity and infancy work (10 part year).

Volunteer assistants—732 physicians and dentists, 56 nurses, 390 lay persons.

Activities:

Child-health conferences conducted by physicians—284; infants and preschool children registered and examined—4,967; visits to conferences—6,165.

Defects found in children examined at conferences—6,518; children having defects—3,543. Parents had defects corrected in 368 of the children.

Prenatal conferences conducted by physicians—7; expectant mothers registered—14; number examined—9; visits to conferences—55. In addition, 81 expectant mothers were examined outside the conferences.

Conferences conducted by nurses, no physician present—494; infants and preschool children inspected—4,530; mothers instructed in prenatal care—14; visits to conferences by children—6,198; visits by mothers—31. In addition, 493 mothers made 548 visits and 1,718 infants and preschool children made 3,357 visits to the nurses' offices for inspection and instruction.

Dental conferences—116; expectant mothers receiving dental examination—60; preschool children receiving dental examination—2,969.

New permanent child-health centers—5 established as a result of the bureau's maternity and infancy work. They are supported by State and county funds.

Classes for girls in care of infants and preschool children—98 organized; girls enrolled—2,285; number completing course—1,072; lessons in course—12.

Classes for mothers—64 organized; mothers enrolled—1,263; number completing course—145; lessons in course—12.

## Activities—Continued.

Classes for midwives—23 organized; midwives enrolled and completing course—496; lessons in course—10. In addition, the county nurses held 1,633 conferences with individual midwives. Since the beginning of the State's cooperation under the maternity and infancy act 4,620 midwives have been given instruction concerning the use of prophylactic drops in the eyes of the newborn and the importance of registration of births attended. Two negro nurses have devoted much time to work with the negro midwives. Assistance was given by a negro physician lent by the United States Children's Bureau.

Home visits by nurses—10,903 (prenatal cases seen, 1,257; obstetrical cases, 219; postnatal cases, 533; infants, 2,419; preschool children, 3,876).

Maternity homes inspected—47; inspections made—75.

Infant homes inspected—209; inspections made—350.

Community demonstrations—7, of a maternity and infancy public health nursing program, in 7 counties.

Group demonstrations—1,043, on preparation of maternity clothing, supplies for confinement, and care at confinement; selection and preparation of food; clothing and feeding of infants; care of the teeth; teaching health habits; testing vision; and other phases of maternal, infant, and child care.

Campaigns—94, in 40 counties. These were of 8 types, including campaigns for promotion of birth registration, for the examination of preschool children and correction of their defects before they should enter school, for vaccination, immunization, and inoculation against communicable diseases; and for other objects related to maternity and infancy work.

Talks and lectures—137 (report incomplete).

Literature distributed—40,554 pieces.

Names registered for prenatal pamphlets—6,297.

Some nutrition work was done through classes for preschool children conducted by the county nurses.

Exhibits conducted—71, including 13 at county fairs. Exhibit material was lent several times.

Breast feeding was stressed by the county nurses in all their contacts with mothers.

Infants born in the State during the year—101,270; infants under 1 year of age reached by the work of the bureau—55,542; preschool children reached—31,778; expectant mothers reached—10,355.

The bureau sends letters to the parents of all infants whose births are registered in the State bureau of vital statistics informing them that literature on the care of children may be had on request.

Counties in the State—254; counties in which maternity and infancy work was done during the year—70; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—121.

Since the beginning of the State's cooperation under the maternity and infancy act six counties have assumed the responsibility for maternity and infancy work begun with maternity and infancy funds.

In response to requests from three counties the bureau supervised the maternity and infancy work in those counties.

The following organizations cooperated in the bureau's work: State medical association and auxiliary, State dental association, Women's Legislative Council, State league of women voters, the American Legion and auxiliary, and parent-teacher associations. Among the children examined at health conferences reported in the foregoing paragraphs were 3,603 examined in the "Get ready for school" campaign sponsored by the National Congress of Parents and Teachers.

The outstanding feature of the year's work was the examination of preschool children in cooperation with the National Congress of Parents and Teachers and its local branches in the "Get ready for school" campaign.

#### INFANT AND MATERNAL MORTALITY RATES

Texas has not been admitted to the United States birth-registration area nor to the death-registration area. Figures, therefore, are not available from the United States Bureau of the Census for comparison of infant or maternal mortality rates. The bureau of child hygiene has conducted campaigns for better registration of births and deaths in an effort to attain the standard required by the Bureau of the Census for admission to the birth-registration area.

UTAH

STAFF AND ACTIVITIES IN 1929

Administrative agency: State board of health, bureau of child hygiene, Salt Lake City.

Funds expended: Federal, \$16,743.19; State, \$3,700.06; total, \$20,443.25.

Staff:

Director (physician), 1 physician (part time), 2 nurses (1 part year), 1 dentist (part year), 1 vital-statistics clerk, 2 stenographers (1 part year). Two physicians were employed as needed to conduct conferences. One county nurse and three county health officers were paid in part from maternity and infancy funds.

Volunteer assistants—14 physicians, 16 dentists, 8 nurses, 841 lay persons.

Activities:

Combined prenatal and child-health conferences conducted by physicians—541; expectant mothers registered—80; number examined—7; infants and preschool children registered—10,216; number examined—10,189; visits to conferences by children—12,747.

Defects found in children examined at conferences—18,716; children having defects—8,265. Parents had defects corrected in 2,659 of the children.

Dental conferences—24; expectant mothers receiving dental examination—38; preschool children receiving dental examination—796. In addition, 109 children received examinations outside the conferences.

New permanent combined prenatal and child-health centers—8 established as a result of the bureau's maternity and infancy work. They are supported by local funds.

Class for girls in care of infants and preschool children—1 organized; girls enrolled and completing course—18; lessons in course—30.

Classes for mothers—3 organized; mothers enrolled (plus those carried over from the previous year)—120; number completing course—85; lessons in course—12.

Home visits by nurses—3,672 (prenatal cases seen, 155; obstetrical cases, 15; postnatal cases, 55; infants, 1,162; preschool children, 3,292).

Maternity home inspected—1; inspections made—2.

Group demonstrations—17, on various phases of infant care, in addition to demonstrations made at all health conferences.

Campaigns—2: (1) For state-wide promotion of physical examination of preschool children and correction of their defects before they should enter school. (2) For observance of May Day as Child Health Day, state-wide. Assistance was given in the campaign conducted by the State board of health for immunization of preschool children against diphtheria and small-pox. In some localities campaigns for immunization against typhoid fever were conducted.

Talks and lectures—137.

Literature prepared—Save the Babies (revised), lessons for classes for mothers.

Literature distributed—28,738 pieces.

New names registered for prenatal letters—529; prenatal letters distributed—515 sets.

Nutrition work was done through individual and group instruction to mothers at conferences.

Exhibit conducted—1, at the State fair, of nursery equipment, dental hygiene, and care of the baby. Exhibit material prepared—posters, infant clothing, and nursery equipment. Exhibit material was lent four times.

Breast feeding was stressed in the instruction given to mothers at conferences and in the literature distributed.

Infants born in the State during the year—approximately 13,000; infants under 1 year of age reached by the work of the bureau—approximately 13,000; preschool children reached—10,216 (through conferences); expectant mothers reached—764.

The bureau sends literature on infant hygiene to parents of all infants whose births are registered in the State bureau of vital statistics.

Counties in the State—29; counties in which maternity and infancy work was done during the year—28; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—29.

## Activities—Continued.

Since the beginning of the State's cooperation under the maternity and infancy act 1 county has assumed the responsibility for maternity and infancy work begun with maternity and infancy funds.

As a result of the bureau's work a number of communities in 5 counties conducted 138 child-health conferences without assistance from the State staff, at which 1,583 infants and preschool children were given physical examinations.

Parent-teacher associations and prominent church relief societies cooperated in the bureau's work. They assisted at health centers, dental conferences, and clinics for immunization against diphtheria, typhoid fever, and small-pox, furnished maternity bundles, and reported names of expectant mothers.

Among the outstanding features of the year's work was the special follow-up work done by the nurses to obtain correction of physical defects found in children examined at conferences.

## INFANT AND MATERNAL MORTALITY RATES

The general death rate for Utah was 8 per cent lower in 1928 (9.6) than in 1921 (10.4). The infant mortality rate was considerably lower in 1928 than in 1921, as the following table shows:

Area	Deaths of infants under 1 year of age per 1,000 live births		
	1921	1928	Percentage of difference
State.....	73	59	-19
Urban.....	69	55	-20
Rural.....	75	61	-19

If the 1921 infant mortality rate had prevailed in 1928, 14 more infants would have died in every 1,000 born alive. This meant a total saving of 182 infant lives. The rise in the infant mortality rate from 54 in 1927 to 59 in 1928 was due entirely to influenza and the accompanying respiratory diseases. The rate from gastrointestinal diseases has shown a downward trend throughout the period 1921 to 1928. The rate for these causes of death was 46 per cent lower in 1928 (3) than in 1921 (5.6). The examination and reexamination of infants at permanent health centers established through the efforts of the State bureau of child hygiene, assisted by a strong church organization, was the means of carrying maternity and infancy work into localities in which medical and nursing care previously had been difficult of access or altogether lacking. The results of this work are no doubt reflected in the general improvement in the mortality rates.

The maternal mortality rate also was lower in 1928 (49) than in 1921 (73). This lower rate indicates a saving of 24 mothers for every 10,000 live births; that is, if the 1921 rate had prevailed in 1928, there would have been 94 deaths from puerperal causes instead of 63. The 1928 rates for urban areas (58) and for rural areas (43) also were lower than the corresponding rates in 1921 (93 and 63).

## VERMONT

## STAFF AND ACTIVITIES IN 1929

Administrative agency: State department of public health, Burlington.

Funds expended: \$8,497.12 (all Federal).

## Staff:

Director (physician, State health officer serving), 3 physicians (1 month), 2 nurses (1 part year), 1 stenographer.

## Activities:

Child-health conferences conducted by physicians—23; infants and pre-school children registered and examined—609.

Defects found in children examined at conferences—1,280; children having defects—502.

Classes for girls in care of infants and preschool children—27, organized in 26 high schools and 1 normal school; girls enrolled and completing course—1,145; lessons in course—5.

Class for mothers—1 organized, with 9 mothers attending the single session held.

Group demonstrations—27, on various phases of child care, to groups of high-school girls in connection with the class work in high schools and a normal school.

Campaigns—2: (1) For observance of May Day as Child Health Day, state-wide. (2) For examination of preschool children and correction of their defects before the children should enter school, in 34 communities.

Talks and lectures—39.

Literature prepared—Motherhood, A Few Thoughts for Mothers, Manual of Infant Hygiene, physical examination record card.

Literature distributed—28,059 pieces.

Lectures on obstetrics, pediatrics, care of the eyes of the newborn, and vital statistics were given to 10 county medical societies by specialists employed for the purpose.

Breast feeding was stressed in talks and lectures given and in motion pictures shown.

Infants born alive in the State during the year—7,008; infants under 1 year of age reached by the letters sent with birth certificates—7,008.

The department of public health sends to parents of all infants whose births are registered in the bureau of vital statistics a letter offering to send literature on infant care upon request.

Counties in the State—14; counties in which maternity and infancy work was done during the year—12; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—13.

The following organizations cooperated in the department's maternity and infancy work: State board of education, State university (extension service), State league of women voters, State federation of women's clubs, women's joint legislative committee, Visiting Nurses' Association, community clubs, and the parent-teacher association.

Among the outstanding features of the year's work were the lectures given on obstetrics and pediatrics before 10 county medical associations and the classes in infant care conducted in 26 high schools and a normal school.

#### INFANT AND MATERNAL MORTALITY RATES

Vermont began to cooperate with the Federal Government under the maternity and infancy act in 1925. The governor accepted the provisions of the act in January, 1922, but the Federal allotment of \$5,000 was returned to the Federal Treasury. (See Table 1, footnote 5 p. 3.)

The general death rate for the State was practically the same in 1928 (13.9) as in 1921 (14.2). The infant mortality rate, on the other hand, was materially lower in 1928 (65) than in 1921 (78). Both urban and rural rates were lower in 1928, that for urban areas being 61 in 1928 and 102 in 1921, and that for rural areas being 66 in 1928 and 73 in 1921. The rates for the State as a whole and for urban and rural areas were the lowest since 1915, the year of the establishment of the birth-registration area by the United States Bureau of the Census.

The maternal mortality rate for the State was lower in 1928 (58) than in 1921 (73). The rate for rural areas was also lower (47 in 1928, as compared with 69 in 1921), being in 1928 the lowest since the establishment of the birth-registration area. For urban areas the 1928 rate (106) was higher than the 1921 rate (98). In connection with these rates, however, the small number of births in the State, particularly in urban areas, must be taken into consideration, as a slight increase or decrease in the number of maternal deaths materially increases or decreases the rate.

## VIRGINIA

## STAFF AND ACTIVITIES IN 1929

Administrative agency: State department of health, bureau of child health, Richmond.

Funds expended: Federal, \$25,574; State, \$20,574; total, \$46,148.

## Staff:

Director (physician), 1 physician (part year), 4 nurses (1 part year), 1 supervisor of midwives, 1 vital-statistics clerk, 4 stenographers, 2 clerks. Additional assistants were employed as needed. Forty-four county nurses and 11 city and town nurses were paid in part from maternity and infancy funds.

## Activities:

Combined prenatal and child-health conferences conducted by physicians—30; expectant mothers registered and examined—6; infants and preschool children registered—469; children examined—229; visits to conferences by expectant mothers—12.

Child-health conferences conducted by physicians—935; infants and preschool children registered—9,283; number examined—8,761; visits to conferences—15,928.

Defects found in children examined at conferences—4,465; children having defects—2,452. Parents had defects corrected in 430 of the children.

The plan begun in 1926 to interest parents in taking their children of preschool age to their own family physicians for examination before the children should enter school was extended this year to 19 counties and 2 cities; local physicians conducted conferences in their own offices, the parents who were able paying small fees. The number of children examined was 2,383. This plan was formally indorsed by the child-welfare committee of the State medical society, which met in the office of the State department of health in the spring to consider the request of the division superintendents of schools that the physicians of the State send them physically fit children to teach, or at least children who could reach the minimum "five-point standard" of being free from defects in nose, throat, mouth, ears, and eyes, and being less than 10 per cent underweight.

Prenatal conferences conducted by physicians—94; expectant mothers registered and examined—70; visits to conferences—349.

Conferences conducted by nurses, no physician present—822; infants and preschool children inspected—3,657; mothers instructed in prenatal care—174; visits to conferences by children—7,745; visits by mothers—7,681 (includes visits by the 174 mothers receiving instruction in prenatal care).

Dental conferences—231; expectant mothers receiving dental examination—2; preschool children receiving dental examination—829.

New permanent combined prenatal and child-health centers—7 established as a result of the bureau's maternity and infancy work. They are supported by county health departments and Red Cross chapters.

New permanent child-health centers—14 established as a result of the bureau's maternity and infancy work. They are supported by county health units, school boards, and private organizations.

Classes for girls in care of infants and preschool children—53 organized; girls enrolled—1,029; number completing course—595; lessons in course—12 to 36.

Classes for mothers—94 organized; mothers enrolled (plus those carried over from the previous year)—1,844; number completing course—480; lessons in course—5 to 30.

Classes for midwives—106 organized; midwives enrolled (plus those carried over from the previous year)—601; number completing course—36; lessons in course—8. The number of midwives known to be practicing in the State has decreased considerably since the State began cooperation under the maternity and infancy act in 1922. The confinements attended by physicians have increased in number while those attended by midwives have decreased. The midwives' work is of a much higher standard than when the State began cooperation under the maternity and infancy act. Each year a larger number have attended the institutes for "doctors' helpers" conducted by the bureau, in which they receive 25 hours of instruction.

Home visits by nurses—50,858 (prenatal cases seen, 2,206; obstetrical cases, 491; postnatal cases, 2,186; infants, 6,248; preschool children, 8,819).

Activities—Continued.

Group demonstrations—15, on various phases of maternal and infant care. The bureau continued its cooperation with the United States Children's Bureau in a study of maternal mortality. (See pp. 117, 123.)

Talks and lectures—187.

Literature distributed—307,778 pieces.

A correspondence course for mothers was conducted, for which 1,314 women enrolled during the year (plus 1,063 carried over from the previous year and 24 reinstated); 551 women completed the course. A record was obtained of babies born to the student mothers before they took the course, during it, or afterwards; and three or four times a year a health bulletin was mailed to each baby.

Five institutes for "doctors' helpers" were conducted for white women at the University of Virginia and elsewhere, with an attendance of 107; and one such institute for colored women was conducted at a State normal and industrial institute, with an attendance of 40. Daily 5-hour sessions were devoted to lectures and demonstrations. These institutes, begun in 1925, have become an increasingly useful part of the bureau's work.

Nutrition work was done through individual and group instruction to mothers. Several nurses organized food clubs with the assistance of home-demonstration agents, three nurses helped to organize and supervise nutrition camps, and nearly all the nurses conducted food demonstrations.

Exhibits conducted—38, including proper foods, home nursing, sanitation, and malaria control.

Breast feeding was stressed in instruction given to mothers and midwives and in the literature distributed.

Infants born in the State during the year—54,262; infants under 1 year of age reached by the work of the bureau—44,558.

The bureau sends literature on infant hygiene to parents of all infants whose births are registered in the State bureau of vital statistics.

Counties in the State—100; counties in which maternity and infancy work was done during the year—98; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—98.

Since the beginning of the State's cooperation under the maternity and infancy act one county has assumed the responsibility for maternity and infancy work begun with maternity and infancy funds.

The following organizations cooperated in the bureau's work: State tuberculosis association, State medical society, Cooperative Education Association, and the parent-teacher association. They assisted with conferences and helped to finance some local nurses. Among the children examined at the health conferences reported in the foregoing paragraphs were 2,171 examined in the "Get ready for school" campaign sponsored by the National Congress of Parents and Teachers.

An outstanding feature of the year's work was the interest and cooperation of the State medical society in the bureau's plan to have the preschool children of the State made physically fit to enter school.

INFANT AND MATERNAL MORTALITY RATES

The general death rate for Virginia in 1928 (11.7) was lower than in 1921 (12.2). The infant mortality rate for the State in 1928 was also lower than in 1921. These rates were materially affected by the high mortality rate for colored infants, the rate for white infants in 1928 being the same as that for white infants in the birth-registration area.

The rates for the two years were as follows:

	1921	1928
State.....	79	76
Urban.....	95	91
Rural.....	74	72
White.....	68	64
Colored.....	103	104

The maternal mortality rate was higher in 1928 than in 1921, and this was the case for both white and colored mothers, as the following figures show:

	1921	1928
State.....	70	75
Urban.....	113	121
Rural.....	59	62
White.....	57	59
Colored.....	99	114

## WASHINGTON

### STAFF AND ACTIVITIES IN 1929

Administrative agency: State department of health, division of public-health nursing and child hygiene, Seattle.

Funds expended: \$10,000 (all Federal).

#### Staff:

Director (nurse, part time), one stenographer, one clerk. Fifteen physicians were employed as needed to conduct conferences. Two county nurses were paid (one in full, one in part) from maternity and infancy funds (part year).

#### Activities:

Child-health conferences conducted by physicians—90; infants and pre-school children registered and examined—5,601. Local dentists made dental examinations at almost all these conferences. Group demonstrations of preparation of foods and formulas and of sun baths were made by local workers at about nine-tenths of the conferences.

Defects found in children examined at conferences—5,767; children having defects—2,536. It was estimated on the basis of check-ups by nurses that parents had defects corrected in three-fourths of the children.

New permanent child-health centers—9 established as a result of the division's maternity and infancy work. They are supported by local funds.

Conferences are conducted at these centers by local physicians and nurses. The division cooperated in a study of maternal mortality (continued from the previous year) being made in the State by the United States Children's Bureau with the indorsement of the State medical society.

Talks and lectures—126. Many of these were given by the pediatricians at child-health conferences.

Literature distributed—17,942 pieces.

New names registered for prenatal letters—780; prenatal letters distributed—2,293 sets. The prenatal-letter service was begun about the middle of the year. Letters were sent to approximately 2,000 physicians in the State explaining the service and requesting them to indicate on attached blanks whether or not they were desirous of securing this assistance. Those desiring the service were asked to send the names of their maternity patients with approximate dates of confinement. Explanatory letters were also sent to all public-health nurses asking their cooperation. The response was gratifying, and the division received numerous letters of appreciation from expectant mothers who were benefited by this service.

A 15-lesson correspondence course for mothers was conducted through the extension service of the State university; mothers registered (including 122 carried over from the previous year)—168; number completing course—20. Arrangements were made to carry the courses to completion for those still enrolled.

Nutrition work was done through instruction to individual mothers at conferences. The extension service of the State agricultural college cooperated in the nutrition work, specialists conducting a number of nutrition classes for mothers of preschool children.

Exhibits were conducted at all child-health conferences.

A bimonthly bulletin containing articles on child hygiene was issued, and a news-letter was syndicated to rural papers throughout the State.



## Activities—Continued.

Breast feeding was emphasized at all conferences and in lectures. Information concerning breast feeding was secured for 3,327 of the children examined at conferences. Of this number, 63 per cent were entirely breast fed, 21 per cent were partly breast fed, and 16 per cent were artificially fed.

Infants born in the State during the year—22,962; infants under 1 year of age reached by the work of the division (exclusive of those reached by literature distributed)—1,626; preschool children reached (exclusive of those reached by literature distributed)—3,975.

Counties in the State—39; counties in which maternity and infancy work was done during the year—36; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—36.

Since the beginning of the State's cooperation under the maternity and infancy act six counties have assumed the responsibility for maternity and infancy work begun with maternity and infancy funds.

As a result of the division's work, campaigns for vaccination against smallpox and for inoculation against diphtheria were conducted in a number of counties, weekly lectures were given to mothers in two cities, and bi-monthly lectures were given in another city under local auspices.

The following organizations cooperated in the division's work: State agricultural college and State university (extension services), State medical, dental, and mental-hygiene associations, State federation of women's clubs, State conference of social workers, American Red Cross, men's service clubs, preschool child study circles, and the parent-teacher association. Their cooperation consisted largely of sponsoring child-health conferences or assisting with them and of furnishing speakers for talks and lectures.

Among the outstanding features of the year's work were the campaigns for the prevention of diphtheria and smallpox conducted in a number of counties as a result of the division's work, the lectures given in connection with child-health conferences, the introduction of the prenatal-letter service, and the completion of the maternal-mortality survey undertaken the previous year in cooperation with the United States Children's Bureau.

## INFANT AND MATERNAL MORTALITY RATES

The general death rate for Washington was 11 per cent higher in 1928 (10.5) than in 1921 (9.5). The infant mortality rate in 1928 (48), however, was 13 per cent lower than in 1921 (55). The rates for urban and rural areas were both lower also, that for urban areas being 43 in 1928 and 55 in 1921, and that for rural areas being 54 in 1928 and 56 in 1921. The difference between the 1921 and 1928 rates represents a saving of 159 infant lives in the State; that is, if the 1921 rate had obtained in 1928, there would have been 1,274 deaths of infants under 1 year of age instead of 1,115. The rate for the State as a whole and for urban areas was lower in 1928 than in any other year since the State was admitted to the birth-registration area in 1917; the lowest rate for rural areas (53) was reached in 1927. The work of leading pediatricians who were employed to assist the division by work with individual infants throughout the State, especially in infant-feeding cases, is in all probability reflected in the lower infant mortality rates in the later years of the operation of the maternity and infancy act.

The infant mortality rate from gastrointestinal diseases was 37 per cent lower in 1928 (3.2) than in 1921 (5.1). The trend of the rates from this cause has been definitely downward throughout this period, although there have been some fluctuations. In 1921 the rate was 5.1; in 1922, 6.7; in 1923, 4.6; in 1924, 5.4. Thereafter lower rates prevailed; the lowest, 2.9, was reached in 1927. The 1928 rate of 3.2 may be regarded as a minor variation. The rate from natal and prenatal causes also showed a downward trend during the period, being 13 per cent lower in 1928 (29) than in 1921 (33.4).

The maternal mortality rate for the State was slightly lower in 1928 (72) than in 1921 (78). The rates for both urban and rural areas were lower, that for urban areas being 84 in 1928 and 87 in 1921 and that for rural areas being 59 in 1928 and 69 in 1921.

## WEST VIRGINIA

## STAFF AND ACTIVITIES IN 1929

Administrative agency: State department of health, division of child hygiene, Charleston.

Funds expended: Federal, \$31,565.97; State, \$14,871.74; total, \$46,437.71.

## Staff:

Director (physician), 3 nurses (1 part time), 1 director of public-health education (part year, part time), 1 auditor (part year, part time), 1 vital-statistics clerk, 1 stenographer, 1 clerk. Nineteen county nurses were paid in part from maternity and infancy funds.

## Activities:

Child-health conferences conducted by physicians—469; infants and preschool children registered and examined—6,042.

Dental conferences—11; preschool children receiving dental examination—492.

New permanent child-health centers—3 established as a result of the division's maternity and infancy work. They are supported by maternity and infancy funds and county funds.

Classes for girls in care of infants and preschool children—466 organized; girls enrolled—5,264; lessons in course—12 to 16.

Classes for mothers—88 organized; mothers enrolled—1,088; lessons in course—4 to 12.

Home visits by nurses—14,538 (visits to prenatal cases, 1,107; obstetrical cases, 83; postnatal cases, 1,251; infants and preschool children, 7,679; other, 4,418).

Community demonstrations—2, of methods of controlling infectious diseases. Group demonstrations—583, on various phases of maternal and infant hygiene at conferences, classes, and other meetings.

Surveys—2 (continued from the previous year): (1) Of the cost of medical care. (2) Of community health conditions affecting children.

Campaigns—7: (1) For observance of May Day as Child Health Day, state-wide. (2) For examination of preschool children and correction of their defects before the children should enter school, state-wide. (3) For early diagnosis of tuberculosis in young children, state-wide. (4) For immunization of preschool children against diphtheria, state-wide. (5, 6, 7) Clean up, safe milk, and elimination of flies, important in reducing infant mortality, in several counties.

Talks and lectures—448.

Literature prepared—Teachers' Manual of Health Education, report of child-health conferences, prenatal letters (revised), outline of public health nursing activities.

Literature distributed—94,486 pieces.

New names registered for prenatal letters—1,299; prenatal letters distributed—1,233 sets.

A correspondence course for mothers was conducted, for which 4,782 mothers were enrolled (plus 11,264 carried over from the previous year); 1,651 mothers completed the course.

Nutrition work was done through instruction given to groups and to individuals at conferences and at classes and through the instruction given in the motherhood correspondence course.

Exhibits conducted—97, including models, motion pictures, literature, charts, posters, and maps. Exhibit material prepared—models, charts, and posters. A film on obstetrics was purchased for educational work among physicians and nurses. Exhibit material was lent 20 times.

Statistical studies made—mothers enrolled for correspondence course, by counties; midwives licensed in the State, by counties; maternal and preschool-child deaths, by counties.

Breast feeding was promoted through the instruction given to mothers at conferences and classes and in the motherhood correspondence course and through the showing of a film on breast feeding.

Infants born in the State during the year—approximately 43,000; infants and preschool children reached by the work of the division—approximately 23,350; expectant mothers reached—2,406.

Counties in the State—55; counties in which maternity and infancy work was done during the year—48; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—55.

Activities—Continued.

Since the beginning of the State's cooperation under the maternity and infancy act one city has assumed the responsibility for maternity and infancy work begun with maternity and infancy funds.

As a result of the division's work many clinics for the immunization of children against diphtheria were conducted under local auspices, and preliminary plans were completed for the formation of a child-health section of the State public-health association, whereby the child-health work of all public and private organizations may be coordinated and carried out under the State division of child hygiene.

The following organizations cooperated in the division's work: State department of education, State university (extension division), State medical association and auxiliary, State tuberculosis association, State league of women voters, farm women's clubs, Woman's Christian Temperance Union, and the parent-teacher association. They assisted in campaigns and surveys, gave publicity to the division's work, and furnished opportunities for conducting classes for mothers and girls.

Among the outstanding features of the year's work were the extension of the division's program for immunization of preschool children against diphtheria, an increase of interest in child-health work on the part of the public, and greater cooperation in the State program for maternity and infancy work on the part of physicians.

INFANT AND MATERNAL MORTALITY RATES

West Virginia was not admitted to the United States birth-registration area until 1925. Mortality rates of earlier years therefore are not available for comparison with those of 1928.

The general death rate for the State in 1928 (10.2) was 15 per cent lower than that for the birth-registration area (12). The infant mortality rate (70) was slightly higher than for the birth-registration area (69). The rate for the State was, however, the lowest since its admission to the area in 1925. The rates were as follows:

	1925	1928
State .....	80	70
Urban .....	93	78
Rural .....	77	69
White .....	78	69
Colored .....	110	95

The maternal mortality rate in 1928 (57) was lower than that of the birth-registration area in the same year (69) as well as lower than that of 1925 in the State (63). The rates were as follows:

	1925	1928
State .....	63	57
Urban .....	118	122
Rural .....	51	43
White .....	60	53
Colored .....	125	110

WISCONSIN

STAFF AND ACTIVITIES IN 1929

Administrative agency: State board of health, bureau of child welfare and public-health nursing, Madison.

Funds expended: Federal, \$31,040.04; State, \$22,751.62; total, \$53,791.66.

Staff:

Director (physician), 5 physicians (2 part year, 1 part time), 5 nurses (2 part year), 1 organizer of infant-hygiene classes, 1 publicity editor (1 month), 1 vital-statistics field worker, 2 vital-statistics clerks (part year), 1 book-keeper (part year), 1 silver-nitrate clerk (part year), 1 general clerk, 1 stenographer, 1 typist. One county nurse was paid in part from maternity and infancy funds.

Volunteer assistants—34 physicians (report incomplete), 178 nurses, 183 lay persons.

## Activities:

- Combined prenatal and child-health conferences conducted by physicians—541; expectant mothers registered and examined—153; infants and preschool children registered and examined—7,094; visits to conferences by expectant mothers—206; visits by children—12,464.
- Defects found in children examined at conferences—12,083; children having defects—5,737. It was estimated that parents had defects corrected in one-fourth to one-third of the children.
- New permanent combined prenatal and child-health centers—13 established as a result of the bureau's maternity and infancy work. They are supported by local, State, and Federal funds.
- The promotion of infant-hygiene courses in the schools of the State was continued. The course given in the schools that prepare teachers was extended to include with the infant-hygiene lectures a 1-hour lecture on the care of the expectant mother. The organizer of infant-hygiene classes gave the complete course in 26 county normal schools and 10 teacher-training departments in high schools. She also gave a lesson of at least 1 hour to 601 high-school girls, 1,530 grade-school girls, and 96 vocational-school girls and an hour's talk to 240 mothers and to 489 rural and State teachers of graded schools in their fall institutes. At one institute a 4-hour course was given. Certificates for completion of the course were issued to 4,241 girls taught by the organizer and by school teachers. Certificates are not issued to students above high-school grade.
- Home visits by nurses—734 (prenatal cases seen, 42; postnatal cases, 39; infants, 364; preschool children, 610).
- Community demonstration—1, in one county (continued from the previous year), of prenatal care and care of the preschool child in a public health nursing program. The names of 178 expectant mothers were listed to receive prenatal letters and the mothers were given instruction and advised to place themselves under the care of a physician during pregnancy. Inspection was made of 2,493 preschool children. The importance of early development of good health habits and of the correction of physical defects before the child should enter school was stressed.
- Group demonstrations—376, on various phases of maternal, infant, and preschool-child care.
- Surveys—3: (1) Of the prevalence of goiter among children, in one township, to compare with data assembled in such a survey made in 1927. (2) Of birth registration, state-wide. (3) Of maternal mortality (continued from the previous year), in cooperation with the United States Children's Bureau and with the indorsement of the State medical society.
- Talks and lectures—137, to audiences totaling 5,907 persons.
- Literature prepared—pamphlets on toxin-antitoxin and care of the teeth, diet cards (revised).
- Literature distributed—386,427 pieces.
- New names registered for prenatal letters—2,627; prenatal letters distributed—2,946 sets.
- Exhibit conducted—1, at the State fair (lasting a week), consisting of layette, posters, and literature. Exhibit material prepared—charts, maps, and posters. Exhibit material was lent 36 times.
- Breast feeding was stressed in the instruction given to mothers at health conferences and in home visits, also in lectures and in the literature distributed. It was estimated that five-sevenths of the infants in the State are breast fed.
- Infants born in the State during the calendar year 1928—57,398; infants under 1 year of age reached by the work of the bureau during the fiscal year ended June 30, 1929—64,501; preschool children reached—6,475; expectant mothers reached—3,141.
- The bureau sends literature on infant hygiene to parents of all infants whose births are registered in the State bureau of vital statistics.
- Counties in the State—71; counties in which maternity and infancy work was done during the year—71.
- Since the beginning of the State's cooperation under the maternity and infancy act 14 counties and 12 communities have assumed part or all of the responsibility for maternity and infancy work begun with maternity and infancy funds.

Activities—Continued.

As a result of the bureau's work the interest in prenatal, infant, and preschool child care has increased throughout the State. Every effort has been made to increase the amount of prenatal and preschool-child work done by all public-health nurses in the State. As a result all the county nurses, many city nurses, and a few school nurses now include work for preschool children in their general programs.

The following organizations cooperated in the bureau's work: American Red Cross, State federation of women's clubs, State federation of colored women's clubs, State league of women voters, American Legion and its auxiliary, and the parent-teacher association. They promoted local interest in the work and financed health centers.

Among the outstanding features of the year's work were the establishment of many new health centers and the distribution in rural communities of literature relating to maternal, infant, and child care and hygiene.

INFANT AND MATERNAL MORTALITY RATES

The general death rate for Wisconsin was 5 per cent higher in 1928 (10.8) than in 1921 (10.3). The infant mortality rate, however, was materially lower in 1928 than in 1921, as the following table shows:

Area	Deaths of infants under 1 year of age per 1,000 live births		
	1921	1928	Percentage of difference
State.....	72	61	-15
Urban.....	79	64	-19
Rural.....	68	60	-12

Eleven of every 1,000 babies born alive in 1928 would have died if the 1921 rate had prevailed. This means a saving of more than 600 infant lives. Except in 1925, when there was a slight increase, the infant mortality rate from gastrointestinal diseases has gone steadily downward from 1921 to 1928. This rate was 55 per cent lower in 1928 (5.9) than in 1921 (13.2). The rates from natal and prenatal causes have also had a downward trend, the 1928 rate (34.7) being 8 per cent lower than the 1921 rate (37.9). The work of the "child-health special" providing return conferences in rural areas over a period of several years, combined with the regular conference work and supervision of infants at permanent centers, appears to have raised the standard of infant care and particularly of infant feeding throughout the State.

The maternal mortality rate was the same in 1928 (58) as in 1921. The rate for urban areas was 69 in 1928 and 74 in 1921, and that for rural areas was 49 in 1928 and 48 in 1921.

WYOMING

STAFF AND ACTIVITIES IN 1929

Administrative agency: State department of public health, division of maternal and infant welfare, Cheyenne.

Funds expended: Federal, \$13,000; State, \$500; total, \$13,500.

Staff:

Director (State health officer serving), 1 vital-statistics clerk, 1 stenographer (37 days). Three county nurses were paid from maternity and infancy funds (two part year). Seven physicians and one dentist were employed as needed to conduct conferences.

Volunteer assistants at conferences—60 physicians, 28 dentists, 37 nurses, 322 lay persons.

## Activities:

Combined prenatal and child-health conferences conducted by physicians—57; expectant mothers registered—26; infants and preschool children registered—1,144; children examined—941.

Child-health conferences conducted by physicians—67; infants and preschool children registered—1,683; number examined—1,470.

Defects found in children examined at conferences—4,127; children having defects—1,260.

Conferences conducted by nurses, no physician present—4; infants and preschool children inspected—78.

Home visits by nurses—1,494 (prenatal cases seen, 241; obstetrical cases, 2; postnatal cases, 129; infants, 462; preschool children, 824).

Group demonstrations—22, on various phases of maternal and child care.

Campaign—1, for immunization against communicable diseases, special emphasis being placed on immunization against diphtheria. The State health officer, assisted by a nurse, gave approximately 20,000 doses of toxin-antitoxin from January 1 to June 20, 1929.

Literature prepared—articles on diphtheria and toxin-antitoxin.

Literature distributed—approximately 11,000 pieces.

Nutrition work was done through lectures and instruction to individual mothers.

Breast feeding was stressed in talks at conferences and in the instruction given during home visits.

Infants born in the State during the year—4,460; infants and preschool children reached by the work of the division (exclusive of those reached by literature distributed)—4,200; expectant mothers reached (exclusive of those reached by literature distributed)—267.

The division sends literature on infant hygiene to parents of all infants whose births are registered in the State bureau of vital statistics.

Counties in the State—23; counties in which maternity and infancy work was done during the year—22; counties in which maternity and infancy work has been done since the acceptance of the maternity and infancy act—23.

The following organizations cooperated in the division's work: The American Legion auxiliary, parent-teacher associations, schools, women's clubs, and local clubs.

Among the outstanding features of the year's work were the health conferences, the communicable-disease work (particularly the immunizations against diphtheria), and the distribution of literature relating to maternal, infant, and child care and hygiene.

## INFANT AND MATERNAL MORTALITY RATES

Wyoming was admitted to the United States birth-registration area in 1922 and began cooperating with the Federal Government under the maternity and infancy act in the same year. Comparison is made therefore between the mortality rates of 1922 and 1928.

The general death rate for the State was lower in 1928 (8.7) than in 1922 (9.3). The infant mortality rate also was lower in 1928 (68) than in 1922 (79). This lower rate meant that 11 of every 1,000 infants born alive survived who would have died if the 1921 rate had prevailed, a saving of 50 infant lives. The urban and rural rates also were lower in 1928 than in 1922, but in examining these rates consideration must be given to the small number of births in these areas, particularly in the urban areas (approximately 1,000 annually), as a slightly larger or smaller number of infant deaths would materially increase or decrease the rates. The rate for the urban areas was 78 in 1928 and 104 in 1922; that for rural areas was 66 in 1928 and 73 in 1922.

The maternal mortality rate for the State was lower in 1928 (65) than in 1922 (71); but, as in the case of infant mortality, the small number of births in the State, particularly in the urban areas, must be taken into consideration. There was no significant difference in these rates in the two years, that for urban areas being 39 in 1928 and 111 in 1922; for rural areas, 70 in 1928 and 62 in 1922.

## FEDERAL ADMINISTRATION DURING 1929

### FEDERAL STAFF

The United States Children's Bureau, whose maternity and infant-hygiene division was created in 1922 to assist in administering the maternity and infancy act, has kept in touch with State and local work through plans and budgets submitted for approval to the Federal Board of Maternity and Infant Hygiene<sup>1</sup> and through reports from the States, staff visits to the States, and the conferences of State directors of the local administration of the act. Reports from the States included annual reports on activities and semiannual financial reports. Copies of monthly or other reports made by the directors of the State bureaus or divisions to their respective State health officers were also received from many States.

During the year under review the regular staff of the maternity and infant-hygiene division consisted of 2 physicians, 2 public-health nurses (employed for only part of the year), an auditor, a secretary, and 2 clerks. The physicians were the director and a negro woman physician employed for special work in States having large negro populations. A Spanish-speaking field worker assisted in special work in New Mexico. The auditor audited the accounts of the States cooperating under the maternity and infancy act; the accounts in Hawaii were audited by another member of the staff who visited the islands.

Eleven physicians were employed for work on the maternal-mortality study—1 physician in charge of details who also did interviewing, and 10 physicians (some of them on a part-time basis) who interviewed physicians and attendants of the women who died.

Two part-time consultants in child hygiene, one part-time consultant in obstetrics, and one nurse consultant were also on the staff.

### ASSISTANCE TO STATES

Special consulting service from the staff of the Children's Bureau is frequently requested by State bureaus and divisions of child hygiene or welfare. During the year under review 17 States and the Territory of Hawaii were visited by physicians or nurses from the maternity and infant-hygiene division. The director of the division spent short periods conferring with State administrators and reviewing types of work in progress in Alabama, Arizona, Arkansas, California, Colorado, Delaware, Hawaii, Louisiana, Maine, Nebraska, New Mexico, Ohio, Texas, Vermont, and Virginia. Special trips for consultations in the interest of maternity and infancy work were made to Illinois, Massachusetts, and New York. The physician in charge of the details of field work in the maternal-mortality study gave consulting service and interviewed physicians in Alabama, Kentucky, and Virginia; and the other physicians employed in connection with the

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<sup>1</sup> See the maternity and infancy act, sec. 3 (Appendix A, p. 127).

study were detailed to the following States at the request of the State health departments: Alabama, Kentucky, Maryland, Nebraska, New Hampshire, Oregon, Rhode Island, Virginia, and Washington.

Assistance in special pieces of work undertaken or under consideration in the cooperating States is frequently requested, and the bureau made details to 17 States in accordance with such requests in the year under review. Through the cooperation of the medical school of Emory University a lecture course in obstetrics for physicians was given in each of four congressional districts in Georgia, arrangements being made by the State division of child hygiene and the district and county medical societies.

Lectures to professional and lay groups were given in Montana during the latter part of the year by the bureau's consultant in child hygiene. The negro woman physician on the bureau's staff organized and taught classes in midwife procedure and promoted the registration of births attended by these women in Delaware and Texas and assisted with an institute for doctors' helpers in Virginia. One of the public-health nurses who was employed for part of the year gave a demonstration in Wyoming of the work to be done by a maternity and infancy nurse; the other assisted in work to improve the registration of births in Texas. The nurse consultant visited Alabama, Arkansas, and North Carolina; a statistician from the bureau visited California, Nebraska, North Dakota, Michigan, Minnesota, Oklahoma, Oregon, Washington, and Wisconsin in connection with the study of maternal mortality; and other members of the bureau staff assisted in promoting birth registration in New Mexico and Texas.

The bureau's obstetrical and pediatric advisory committees gave valuable assistance during the year under review.<sup>2</sup> The consulting obstetrical committee met at the bureau to discuss a revised manuscript of the bureau's bulletin *Prenatal Care*, prepared by the chairman of the committee, problems arising in connection with the maternal-mortality study, and a plan for a series of lectures on obstetrics before medical groups in various States. The pediatric advisory committee met to discuss the manuscript of a revision of the bureau's bulletin *Infant Care* (issued in December, 1929), and the preliminary draft of a new bulletin to supersede the bulletin *Child Care*.

#### PROMOTION OF BIRTH REGISTRATION

As in previous years, the Children's Bureau gave assistance in the campaigns for state-wide registration of births in States not in the United States birth-registration area. For this purpose a member of the bureau's statistical division and a nurse from the staff of the

<sup>2</sup> The members of the pediatric advisory committee are: Dr. Howard Childs Carpenter, associate professor of pediatrics, University of Pennsylvania School of Medicine, representing the American Child Health Association; Dr. Julius H. Hess, professor of pediatrics, University of Illinois College of Medicine, representing the section of diseases of children of the American Medical Association; and Dr. Richard M. Smith, assistant professor of child hygiene, Harvard University Medical School, representing the American Pediatric Society. The members of the obstetrical advisory committee are: Dr. Robert L. De Normandie, instructor in obstetrics, Harvard Medical School, chairman; Dr. Fred L. Adair, professor of obstetrics and gynecology, University of Chicago; Dr. Rudolph W. Holmes, professor of obstetrics, Northwestern University Medical School, Chicago; Dr. Ralph W. Lobenstine, chairman medical advisory board, Maternity Center Association, New York; Dr. Frank W. Lynch, professor of obstetrics and gynecology, University of California Medical School; Dr. James R. McCord, professor of obstetrics and gynecology, Emory University School of Medicine, Atlanta; Dr. C. Jeff Miller, professor of gynecology, Tulane University of Louisiana School of Medicine, New Orleans; Dr. Otto H. Schwarz, professor of obstetrics and gynecology, Washington University School of Medicine, St. Louis; Dr. Alice N. Pickett, assistant professor of obstetrics, University of Louisville School of Medicine, Louisville.



maternity and infant-hygiene division were detailed to Texas, and the Spanish-speaking field worker was detailed to New Mexico. The work of the negro physician on the bureau's staff to improve the registration of births among the negro populations of Delaware and Texas has been mentioned in the preceding section. The bureau also helped to promote birth registration through the membership of the director of the maternity and infant-hygiene division on the committee to aid completion of the registration area before 1930, organized by the American Public Health Association.

## RESEARCH AND PUBLICATIONS

### STUDY OF MATERNAL MORTALITY

The investigation of maternal mortality conducted by the child-hygiene bureaus or divisions of 15 States in cooperation with the United States Children's Bureau, on the request of the State boards of health and with the indorsement of the State medical societies (see p. 22), was practically completed during the year under review. The data will be compiled, analyzed, and published by the Children's Bureau. Preliminary reports of findings for the puerperal deaths in 1927 were given to medical groups in Maryland and Nebraska, and tabulations of certain points in the schedule concerning the 2,650 puerperal deaths that occurred in 12 of the 13 States covered in 1927 were made for the use of the secretary of the American Medical Association's section on obstetrics, gynecology, and abdominal surgery (who is a member of the consulting obstetrical committee of the Children's Bureau) at the meeting of that association in Portland, Oreg., in July, 1929.

### STUDY OF STILLBIRTHS AND NEONATAL DEATHS

The Children's Bureau assisted in the tabulation and analysis of a study of stillbirths and deaths of infants under 2 weeks of age being made by the medical school of the University of Minnesota. Through this study, information on the prenatal, natal, and neonatal history of the children, their physical measurements, the autopsy findings, and the pregnancy history, natal history, and postpartum history of the mothers will be made available.

### STUDY OF NEONATAL MORBIDITY AND MORTALITY

Examination of newborn infants in New Haven by the Children's Bureau in cooperation with the Yale University School of Medicine was continued, also the work of preparing for analysis the data obtained. This study is mainly exploratory, its purpose being to discover what the evidence shows as to the need for further intensive studies.

### STUDY OF RICKETS

Tabulation and statistical analysis of the material collected in the study of rickets in New Haven and the study of the health of infants and preschool children in Porto Rico were continued. As the prevention or control of rickets was the main purpose of the investigation, special attention was given to the earliest manifestations of the disease, and special study was made of the incidence of rickets (both clinical and Röntgen ray) in successive age periods for the

group of children who were examined repeatedly. A special report on carpal centers of ossification as one index of growth will be based on Röntgen-ray examinations of the short bones of the wrist made in New Haven and similar material from the Porto Rico study.

#### NEW HEIGHT AND WEIGHT TABLES

The weight, height, and age figures for 83,846 white boys and 81,653 white girls under 6 years of age examined during Childrens' Year (1918) were reanalysed to show average weight for height for boys and girls by smaller age intervals and to present the averages for a larger proportion of the children of these ages. Average weight for height for each month of age during the first year of life will be shown, also for each three months during the second and third years, and for each six months during the fourth, fifth, and sixth years. The new figures have been used in the new edition of *Infant Care* and will be included in a new bulletin prepared to replace *Child Care*.

#### OTHER PUBLICATIONS

Two new folders, *Out of Babyhood into Childhood* and *Why Sleep?* were issued during the year under review. A new folder on *Your Child's Teeth* was in preparation and has since been issued. The bureau's folders *Keeping the Well Baby Well* and *Why Drink Milk?* were revised; also the dodger *Is Your Child's Birth Recorded?*

The bureau's bulletin *Prenatal Care* was revised and to a large extent rewritten, and the revision was considered at a meeting of the bureau's obstetrical advisory committee. With the help of the bureau's pediatric advisory committee, new bulletins were prepared to replace *Infant Care* and *Child Care* (Publications 8 and 30). These were sent to press after the fiscal year under review.

A series of 12 lessons containing material on child management was in preparation during the year under review.<sup>2</sup>

#### DISTRIBUTION OF PUBLICATIONS

Publications of the Children's Bureau relating to the care and hygiene of mothers, infants, and preschool children are distributed free to persons requesting single copies, and limited numbers are sent to the States for free distribution. During the year under review more than 800,000 copies of the popular bulletins *Prenatal Care*, *Infant Care*, *Child Care*, and *Child Management* were distributed by the bureau to mothers directly and through monthly allotments to State bureaus and divisions of child hygiene or welfare and a number of county and city boards of health. Many States buy additional copies from the Government Printing Office; during the year under review nearly 400,000 copies were sold. By June 30, 1929, 9,637,432 of these bulletins had been distributed since the dates of publication.

#### MOTION PICTURES AND EXHIBIT MATERIAL

Among the Children's Bureau exhibit material that may be borrowed are posters and panels, motion-picture films, film strips for use in automatic and hand projectors, lantern slides, and models. (See p. 142.) During the year under review 367 shipments of exhibit

<sup>2</sup> This has been issued as Publication No. 202, *Are You Training Your Child to Be Happy?*

material, including 3,261 panels, 423 reels of films, 350 slides, 78 film strips, 12 models, and 10 projectors were sent to National, State, and local organizations in continental United States, Hawaii, and the Philippine Islands to aid them in their efforts to bring child-welfare problems to the attention of the public. These organizations include the American Medical Association and other medical societies, public-health agencies, child-welfare and other social-service organizations, fraternal orders, educational institutions, Young Men's and Young Women's Christian Associations, The American Red Cross, Boy Scout Troops, Camp Fire Girls, women's clubs, and State and county fairs. In addition, the bureau lent posters, slides, and motion-picture films to child-welfare organizations in Argentina, Brazil, Canada, Costa Rica, England, India, Japan, Paraguay, Turkey, and other foreign countries.

#### **RADIO PROGRAMS**

An increased demand for cooperation in radio programs was received by the Children's Bureau during the year under review. A regular series of Wednesday morning radio talks on child welfare was begun by the chief of the bureau on May Day (Child Health Day), and material was supplied to individuals and agencies for the preparation of radio programs on child care.

## THE SERVICES OF THE CHILDREN'S BUREAU UNDER THE MATERNITY AND INFANCY ACT

A maternity and infant-hygiene division of the Children's Bureau was organized in 1922 to administer the maternity and infancy act. The existing child-hygiene division of the bureau continued its research in the general field of child health but had no responsibility for the administration of the act. To the maternity and infancy division, after approval of the State plans and budgets submitted to the Federal Board of Maternity and Infant Hygiene<sup>1</sup> were intrusted the details of the Federal administration of the act. Its work included auditing annually the State accounts covering the Federal and matched funds allotted to the States under the act, checking financial reports and reports of work submitted by the States with their plans and budgets, compiling annual reports of the joint work of the State and the Federal Governments in this field, establishing contacts with the States through advisory visits made by the administrative and field staffs of the division, and conducting surveys designed to promote the purposes of the act.

The visits to the States by the director, the other physicians, and the consulting nurse kept the bureau informed of the types, amount, and character of the work in the States. To the States these specialists brought an outside point of view of the work they were doing and accounts of what other States were finding helpful. Sometimes an obvious need for special personnel was noted, and this resulted in the lending of personnel from the Children's Bureau for demonstration or some other special work in the States. In addition to its administrative work the maternity and infant-hygiene division served as a clearing house for information on maternal and infant care for the public—which included mothers, authors, scientists, social workers, nurses, and other groups.

Through this division field studies relating to maternity and infancy were directed. The child-hygiene division also conducted studies and research relating to the infant and the child, and both divisions assisted in the preparation of publications, films, and other educational material relating to maternal and child welfare issued by the bureau.

### THE STAFF OF THE MATERNITY AND INFANT-HYGIENE DIVISION

For the purposes of administration \$50,000 was allotted annually to the Children's Bureau from the maternity and infancy fund for 1923 and 1924 and \$50,354 from 1925 to 1929.<sup>2</sup> The headquarters staff of the maternity and infant-hygiene division and the number of other persons regularly employed were kept at a minimum. This policy left available sufficient funds for certain studies and demonstrations and for the lending of specially trained personnel to do special field work for short periods. The headquarters staff was a fairly constant group consisting of the director (a physician), an assistant director or a specialist in child hygiene (also a physician), the accountant,

<sup>1</sup> See maternity and infancy act, secs. 3 and 8 (Appendix A, pp. 127, 128).

<sup>2</sup> See the maternity and infancy act, sec. 5 (Appendix A, p. 128).

who in addition to auditing the expenditures of maternity and infancy funds in the States also acted as accountant at headquarters, a secretary, and two clerks. The field staff changed in type and number of workers and in the services rendered as occasion demanded and as new types of work developed. In 1929 this staff included 12 physicians, 2 nurses, and 1 other worker.

### ASSISTANCE TO STATES

From 1922 to 1929 the director of the maternity and infant hygiene division visited each of the cooperating States and the Territory of Hawaii. Many of the States received several of these advisory visits. The consulting nurse made advisory visits to approximately all the cooperating States, and the accountant made annual visits to the States to audit accounts.

The passage of the maternity and infancy act produced an immediate demand for trained workers, which was in excess of the supply. At the request of the States the consulting staff nurse of the bureau arranged a course of instruction in maternal and child care for nurses, which she gave before groups of nurses. Between December 1, 1922, and June 30, 1923, such institutes for nurses were held in 16 States.

Many States requested the services of physicians from the Children's Bureau to conduct demonstration child-health or prenatal conferences. Physicians were secured for such work and served for varying periods in Kentucky, Montana, North Carolina, North Dakota, Oregon, and South Carolina.

Racial groups presented needs for special workers for improvement of midwives. The negro midwives of the South offered a special problem in connection with the lowering of the death rate in the Southern States. At the request of the State health officers of Delaware, Georgia, Tennessee, Texas, and Virginia, the negro woman physician on the staff of the maternity and infant-hygiene division served as instructor of negro midwives and promoted birth registration for five years. She also held conferences in connection with health week at the hospital of the State normal and industrial institute at Tuskegee, Ala. The Spanish-speaking public-health nurse on the staff aided in instructing midwives in New Mexico. Demonstrations of maternity and infancy work were conducted in several States at their request. For several months one of the public-health nurses on the Federal staff conducted a demonstration nursing program in maternal and child care in four counties of Utah; following this she gave a demonstration program in care of the preschool child in Nebraska, then a demonstration of a public-health nursing program in the interest of mothers and babies in Wyoming. Each of these demonstrations awakened local interest and stimulated local activities for improving maternal and child hygiene.

Considerable assistance was given to State campaigns for improvement of birth and death registration. Good vital statistics are the foundation for good public-health programs. They furnish the compass by which public-health work is guided. Without them any public-health program is more or less uncertain. Realizing this, the Children's Bureau was eager to assist States that were conducting campaigns to bring themselves into the United States birth and death registration areas.

To 10 States the bureau gave special assistance in their campaigns to secure more complete registration: Arkansas, Colorado, Georgia, Idaho, Louisiana, Nevada, New Mexico, Oklahoma, South Carolina, and Texas. The director of the maternity and infant-hygiene division also served as a member of the National Committee to Aid Completion of the Registration Area before 1930. Both the birth and death registration areas are now complete for continental United States with the exception of South Dakota and Texas.

The specialists in child hygiene and obstetrics who were on the the staff as consultants (see p. 115) gave part-time services on request in 11 States. One specialist in child hygiene gave educational talks in California, Colorado, Louisiana, Michigan, and West Virginia; another was lent to give courses in child hygiene to physicians in Montana, Nevada, and Oklahoma. A specialist who was consultant in obstetrics conducted courses in obstetrics for physicians in Kentucky and Oklahoma and gave some educational talks in Alabama. A member of the obstetrical advisory committee conducted such courses in Georgia and Florida. The bureau gave special statistical assistance in the analysis of maternal and infant mortality data in Delaware, Indiana, Kentucky, Maryland, Michigan, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, Virginia, and Wisconsin. An analysis of infant and maternal morbidity and mortality in Idaho was requested by the Idaho Department of Public Welfare, and a statistician from the bureau was assigned to the State for the study. At the request of Tennessee a statistician was assigned to that State to make a study of neonatal and maternal mortality in relation to the attendant at birth, in six counties.

#### CONFERENCES OF STATE DIRECTORS

Five annual conferences of directors of State bureaus and divisions administering the Federal maternity and infancy act were held in the Children's Bureau in Washington during the seven years of the operation of the act. (No conference was held in 1922, the first year of the operation of the act, and none in 1929, the last year of its operation.) The attendance included not only the directors from practically all the cooperating States, a number of associate directors, supervising nurses, and other members of the child-hygiene or child-welfare bureaus and divisions but also State health officers from several of the States. Representatives from the three noncooperating States also attended some of the conferences. The directors decided upon the time for holding the conferences and the topics to be discussed. The Children's Bureau arranged for transportation and details in relation to the program, including securing of speakers. Representatives from private organizations whose direct or indirect purpose is the furtherance of maternal or child welfare or hygiene, as well as specialists in pediatrics, obstetrics, nutrition, and related subjects, were among those who appeared on the conference programs. These conferences made possible the exchange of experiences by the State directors and proved of great practical value to them.

### ADVISORY COMMITTEES

Two advisory committees, one of pediatricians and one of obstetricians, rendered valuable services to the bureau.<sup>3</sup> The members of these committees are distinguished in their special fields. The pediatric advisory committee consists of three members, one named by each of the following organizations: The American Pediatric Society, the pediatric section of the American Medical Association, and the American Child Health Association. The director of the child-hygiene division of the Children's Bureau meets with this committee. Standards for conducting child-health conferences were formulated by the pediatric advisory committee, with the assistance of two university professors of pediatrics and a State director of maternity and infancy work. All educational material on infant care and child care issued by the bureau is submitted to this committee for approval or revision.

The obstetrical advisory committee was organized at the request of the 1924 conference of State directors of bureaus of child hygiene, the suggestion being made that a committee be appointed to draw up standards of prenatal care for the use of physicians at clinics and also in private work. The Children's Bureau accepted the suggestion, and the chief of the bureau requested an obstetrician who is also a member of the faculty of the Harvard Medical School to form such a committee. The members, who represent different geographical sections of the country, include instructors in obstetrics from several medical schools. The director of the maternity and infant-hygiene division of the Children's Bureau meets with this committee. This committee formulated standards of prenatal care for physicians, which were published by the Children's Bureau in 1925 as one of its bulletins and which have been adopted by several medical schools for use in their courses of instruction. The committee continued to serve the bureau in an advisory capacity, and its chairman also has rewritten the bureau's bulletin *Prenatal Care*, which like all the bureau's publications on this subject was approved by the committee before it was issued. The scope and character of the maternal-mortality study made by 15 States in cooperation with the bureau were determined largely by this committee.

These two committees are not merely nominal; they render great service to the bureau and to parents and State directors who look to the bureau for material on the subject of adequate maternal, infant, and child care.

### SURVEYS AND STUDIES

The Children's Bureau cooperated in surveys and studies in a number of States. Usually the cooperation included the assignment of bureau personnel for the purpose of collecting data in the States, the information obtained to be compiled, edited, and published later by the bureau.

#### SURVEY OF MATERNITY HOMES

Soon after the passage of the maternity and infancy act a survey of maternity homes was made in cooperation with the State of Pennsylvania. Both health and social aspects were investigated, a physician

<sup>3</sup> For the membership of these advisory committees see footnote 2, p. 116.

and a social worker being assigned from the bureau for the study. Later the investigation was extended to Minnesota, and still later Montana requested a survey of maternity homes and a physician was assigned to make the survey in that State.

#### STUDY OF STILLBIRTHS AND NEONATAL DEATHS

An investigation of stillbirths and neonatal deaths was begun at the University of Minnesota in 1923 for the maternity and infant-hygiene division of the Children's Bureau. The study related to factors responsible for the deaths before, during, and after birth and included a study of etiology, pathology, and prevention, based on about 1,000 stillbirths and deaths of infants under 2 weeks of age. The tabulations are in process of analysis by bureau statisticians.

#### STUDY OF NEONATAL MORBIDITY AND MORTALITY

In 1928 the child-hygiene division of the bureau began a study of the causes of neonatal morbidity and mortality, in cooperation with the Yale University School of Medicine. Infants were examined on the first, third, tenth, fourteenth, and forty-second days of life, and a pathological study was made of any who died before the forty-second day. The information regarding 1,001 cases to be included in the report of the study will follow certain general lines relating the natal and neonatal history of the child to the prenatal and natal history of the mother. Special analysis will be made of the history of the premature infants; and the history of those who were stillborn or who died within the first month after birth will be given special attention to determine so far as possible the cause of death. The findings in these special studies and in the autopsies made will be considered in connection with the information available for the whole group.

#### STUDY OF MATERNAL MORTALITY

A maternal-mortality study was discussed by the chairman of the bureau's obstetrical advisory committee at the 1926 conference of State directors of maternity and infancy work, and such a study was approved by the conference. A plan of work, schedules, and instructions covering details of the work were prepared with the assistance of the bureau's obstetrical advisory committee. Every maternal death registered within the calendar years 1927 and 1928 was investigated in 13 States and every such death registered in 1928 in these States and two additional States. These 15 States were the following: Alabama, California, Kentucky, Maryland, Michigan, Minnesota, Nebraska, New Hampshire, North Dakota, Oklahoma, Oregon, Rhode Island, Virginia, Washington, and Wisconsin.

The investigations made by the physicians included the selection of data from birth and death certificates, and visits to attendants, physicians, midwives, or others who attended the woman who died. The hospital record was obtained for all of these women who had had hospital care. The Children's Bureau lent physicians to nine States to make the investigations. Six States supplied physicians from their own staffs to make the visits to attendants, only advisory and other occasional service being rendered these six States by the bureau. Facts in the birth and death certificates filed in the State bureaus of vital statistics afforded the preliminary data. Further information was obtained by the medical investigators in their interviews with the physician, midwife, or other attendant at birth for every woman who



died in childbirth within the period of the study. The data from the 7,537 schedules obtained in the 15 States came to the Children's Bureau to be tabulated and analyzed.

In the 13 States in which all maternal deaths of 1927 (3,234) were investigated 797 of these deaths were due to albuminuria and convulsions. Reports on the prenatal care received were obtained for 728 of these deaths. More than half the women (375) received no prenatal care. Of the 355 who had some prenatal care, 192 had wholly inadequate care. Sixty-four had fair care beginning somewhat late in pregnancy, and 76 received care that was regarded as good though below the requirements in the bulletin, *Standards of Prenatal Care*, prepared by the obstetrical advisory committee of the Children's Bureau and issued by the bureau. Only 20 mothers had the grade of care "excellent" recommended in this bulletin. In 3 cases the care could not be graded.

It should be borne in mind that the statement of the amount and kind of prenatal care given relates only to a group of women who died from albuminuria and convulsions; a survey of care given mothers surviving childbirth might show a larger proportion of women receiving proper prenatal care.

Of the 3,234 puerperal deaths in 1927 in 13 States, 1,278 (40 per cent) were due to puerperal septicemia. One of the objects of the study has been to determine the underlying causes of the deaths from sepsis, which form a large proportion of the puerperal losses. It was found that abortions preceded 45 per cent of the deaths from septicemia. Of a total of 570 abortions 309 were induced, 154 were spontaneous, 19 were therapeutic, and for 88 the type was unknown. Thus abortions known to be induced were responsible for about one-fourth of the deaths from sepsis.

A study of 796 cases in the sepsis group for which prenatal care was reported showed that nine-tenths of the women had had inadequate care or no care.

#### STUDY OF RICKETS

Some of the work of the child-hygiene division of the bureau was of direct value in promoting the purposes of the maternity and infancy act—in particular a study of rickets made by that division in cooperation with the Yale University School of Medicine and the New Haven Department of Health. A district consisting of three wards of New Haven was selected for the demonstration part of the study, which covered approximately three years. During this period clinical and X-ray examinations were made of the children receiving treatment and of a control group. Social and economic data having a bearing on the development of rickets in New Haven also were collected. Tabulations were made showing the relation of the New Haven rickets diagnoses in each 3-month period to the amount of cod-liver oil taken, the diet, the presence of tanning of the skin, the rate of growth, and the deviation from average weight for height and age, not only in the period under consideration but also in contiguous periods.

A study of approximately 600 Porto Rican infants also was made to furnish further standards for interpreting the New Haven findings. The study covered, in addition to data on rickets, not only certain aspects of health but also material on social and economic conditions in the families of the children, diets, and such local conditions as were

pertinent to the study. The health of the children as indicated by morbidity and mortality statistics was considered, their growth, and their general physical condition. The report of this study will include a detailed discussion of the incidence of rickets, evidences of the disease found in röntgenograms of the arm bones and at physical examination, and the relation of these evidences to various other factors.

In addition to the rickets studies in New Haven and Porto Rico a study was made of rickets in children in the District of Columbia. Both clinical and X-ray data were collected in this investigation, and attention was given also to the nutrition of the children.

#### PREPARATION OF MATERIAL FOR DISTRIBUTION

Although the States themselves prepare popular publications on child care and maternal care for distribution to the public, most of them also receive regular quotas of certain popular bulletins on child and maternal care issued by the Children's Bureau, which they distribute to their public. Several new folders were prepared during the period when the bureau and the States were conducting this cooperative program and were widely distributed by State directors.

A number of bureau publications have been prepared for the information of physicians and nurses conducting child-health work, for scientists, and for research workers. Included in this group of publications are Standards for Physicians Conducting Conferences at Child-Health Centers, Standards of Prenatal Care—an outline for the use of physicians, Prenatal Letters (prepared for the use of State bureaus or divisions of child hygiene), References on the Physical Growth and Development of the Normal Child, Posture Clinics, Posture Exercises, Habit Clinics for the Child of Preschool Age, Milk—the Indispensable Food for Children, and What Is Malnutrition?

In the grant of funds to the States the maternity and infancy act assisted directly in the promotion of the welfare and hygiene of maternity and infancy. The surveys and studies of the Children's Bureau, the lending of members of the Federal staff who are specialists in child hygiene and obstetrics, the conferences of State directors, the assistance given by national advisory committees of pediatricians and obstetricians, and the popular bulletins published by the bureau also played an important part in this joint undertaking of the State and Federal Governments.

## APPENDIXES

### APPENDIX A.—TEXT OF THE ACT FOR THE PROMOTION OF THE WELFARE AND HYGIENE OF MATERNITY AND INFANCY AND OF SUPPLEMENTARY LEGISLATION

[S. 1039—Sheppard-Towner Act; Public 97—67th Congress; 42 Stat. 224]

An Act For the promotion of the welfare and hygiene of maternity and infancy, and for other purposes

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That there is hereby authorized to be appropriated annually, out of any money in the Treasury not otherwise appropriated, the sums specified in section 2 of this Act, to be paid to the several States for the purpose of cooperating with them in promoting the welfare and hygiene of maternity and infancy as hereinafter provided.

SEC. 2. For the purpose of carrying out the provisions of this Act, there is authorized to be appropriated, out of any moneys in the Treasury not otherwise appropriated, for the current fiscal year \$480,000, to be equally apportioned among the several States, and for each subsequent year, for the period of five years, \$240,000, to be equally apportioned among the several States in the manner hereinafter provided: *Provided*, That there is hereby authorized to be appropriated for the use of the States, subject to the provisions of this Act, for the fiscal year ending June 30, 1922, an additional sum of \$1,000,000, and annually thereafter, for the period of five years, an additional sum not to exceed \$1,000,000: *Provided further*, That the additional appropriations herein authorized shall be apportioned \$5,000 to each State and the balance among the States in the proportion which their population bears to the total population of the States of the United States, according to the last preceding United States census: *And provided further*, That no payment out of the additional appropriation herein authorized shall be made in any year to any State until an equal sum has been appropriated for that year by the legislature of such State for the maintenance of the services and facilities provided for in this Act.

So much of the amount apportioned to any State for any fiscal year as remains unpaid to such State at the close thereof shall be available for expenditures in that State until the close of the succeeding fiscal year.

SEC. 3. There is hereby created a Board of Maternity and Infant Hygiene, which shall consist of the Chief of the Children's Bureau, the Surgeon General of the United States Public Health Service, and the United States Commissioner of Education, and which is hereafter designated in this Act as the board. The board shall elect its own chairman and perform the duties provided for in this Act.

The Children's Bureau of the Department of Labor shall be charged with the administration of this Act, except as herein otherwise provided, and the Chief of the Children's Bureau shall be the executive officer. It shall be the duty of the Children's Bureau to make or cause to be made such studies, investigations, and reports as will promote the efficient administration of this Act.

SEC. 4. In order to secure the benefits of the appropriations authorized in section 2 of this Act, any State shall, through the legislative authority thereof, accept the provisions of this Act and designate or authorize the creation of a State agency with which the Children's Bureau shall have all necessary powers to cooperate as herein provided in the administration of the provisions of this Act: *Provided*, That in any State having a child-welfare or child-hygiene division in its State agency of health, the said State agency of health shall administer the provisions of this Act through such divisions. If the legislature of any State has not made provisions for accepting the provisions of this Act the governor of such State may in so far as he is authorized to do so by the laws of such State accept the provisions of this Act and designate or create a State agency to cooperate with the Children's Bureau until six months after the adjournment of the first regular session of the legislature in such State following the passage of this Act.

SEC. 5. So much, not to exceed 5 percentum, of the additional appropriations authorized for any fiscal year under section 2 of this act, as the Children's Bureau may estimate to be necessary for administering the provisions of this act, as herein provided, shall be deducted for that purpose, to be available until expended.

SEC. 6. Out of the amounts authorized under section 5 of this act the Children's Bureau is authorized to employ such assistants, clerks, and other persons in the District of Columbia and elsewhere, to be taken from the eligible lists of the Civil Service Commission, and to purchase such supplies, material, equipment, office fixtures, and apparatus, and to incur such travel and other expenses as it may deem necessary for carrying out the purposes of this act.

SEC. 7. Within 60 days after any appropriation authorized by this act has been made, the Children's Bureau shall make the apportionment herein provided for and shall certify to the Secretary of the Treasury the amount estimated by the bureau to be necessary for administering the provisions of this act, and shall certify to the Secretary of the Treasury and to the treasurers of the various States the amount which has been apportioned to each State for the fiscal year for which such appropriation has been made.

SEC. 8. Any State desiring to receive the benefits of this act shall, by its agency described in section 4, submit to the Children's Bureau detailed plans for carrying out the provisions of this act within such State, which plans shall be subject to the approval of the board: *Provided*, That the plans of the States under this act shall provide that no official, or agent, or representative in carrying out the provisions of this act shall enter any home or take charge of any child over the objection of the parents, or either of them, or the person standing in loco parentis or having custody of such child. If these plans shall be in conformity with the provisions of this act and reasonably appropriate and adequate to carry out its purposes they shall be approved by the board and due notice of such approval shall be sent to the State agency by the chief of the Children's Bureau.

SEC. 9. No official, agent, or representative of the Children's Bureau shall by virtue of this act have any right to enter any home over the objections of the owner thereof, or to take charge of any child over the objection of the parents, or either of them, or of the person standing in loco parentis or having custody of such child. Nothing in this act shall be construed as limiting the power of a parent or guardian or person standing in loco parentis to determine what treatment or correction shall be provided for a child or the agency or agencies to be employed for such purpose.

SEC. 10. Within 60 days after any appropriation authorized by this act has been made, and as often thereafter while such appropriation remains unexpended as changed conditions may warrant, the Children's Bureau shall ascertain the amounts that have been appropriated by the legislatures of the several States accepting the provisions of this act and shall certify to the Secretary of the Treasury the amount to which each State is entitled under the provisions of this act. Such certificate shall state (1) that the State has, through its legislative authority, accepted the provisions of this act and designated or authorized the creation of an agency to cooperate with the Children's Bureau, or that the State has otherwise accepted this act, as provided in section 4 hereof; (2) the fact that the proper agency of the State has submitted to the Children's Bureau detailed plans for carrying out the provisions of this act, and that such plans have been approved by the board; (3) the amount, if any, that has been appropriated by the legislature of the State for the maintenance of the services and facilities of this act, as provided in section 2 hereof; and (4) the amount to which the State is entitled under the provisions of this act. Such certificate, when in conformity with the provisions hereof, shall, until revoked as provided in section 12 hereof, be sufficient authority to the Secretary of the Treasury to make payment to the State in accordance therewith.

SEC. 11. Each State agency cooperating with the Children's Bureau under this act shall make such reports concerning its operations and expenditures as shall be prescribed or requested by the bureau. The Children's Bureau may, with the approval of the board, and shall, upon request of a majority of the board, withhold any further certificate provided for in section 10 hereof whenever it shall be determined as to any State that the agency thereof has not properly expended the money paid to it or the moneys herein required to be appropriated by such State for the purposes and in accordance with the provisions of this act. Such certificate may be withheld until such time or upon such conditions as the Children's Bureau, with the approval of the board,

may determine; when so withheld the State agency may appeal to the President of the United States who may either affirm or reverse the action of the bureau with such directions as he shall consider proper: *Provided*, That before any such certificate shall be withheld from any State, the chairman of the board shall give notice in writing to the authority designated to represent the State, stating specifically wherein said State has failed to comply with the provisions of this act.

SEC. 12. No portion of any moneys apportioned under this act for the benefit of the States shall be applied, directly or indirectly, to the purchase, erection, preservation, or repair of any building or buildings or equipment, or for the purchase or rental of any buildings or lands, nor shall any such moneys or moneys required to be appropriated by any State for the purposes and in accordance with the provisions of this act be used for the payment of any maternity or infancy pension, stipend, or gratuity.

SEC. 13. The Children's Bureau shall perform the duties assigned to it by this act under the supervision of the Secretary of Labor, and he shall include in his annual report to Congress a full account of the administration of this act and expenditures of the moneys herein authorized.

SEC. 14. This act shall be construed as intending to secure to the various States control of the administration of this act within their respective States, subject only to the provisions and purposes of this act.

Approved, November 23, 1921.

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[Public 35—68th Congress; 43 Stat. 17]

An Act To extend the provisions of certain laws to the Territory of Hawaii

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SEC. 3. The Territory of Hawaii shall be entitled to share in the benefits of the act entitled "An act for the promotion of the welfare and hygiene of maternity and infancy, and for other purposes," approved November 23, 1921, and any act amendatory thereof or supplementary thereto, upon the same terms and conditions as any of the several States. For the fiscal year ending June 30, 1925, there is authorized to be appropriated, out of any money in the Treasury not otherwise appropriated, the sum of \$13,000 to be available for apportionment under such act to the Territory, and annually thereafter such sum as would be apportioned to the Territory if such act had originally included the Territory.

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Approved, March 10, 1924.

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[Public 566—69th Congress; 44 Stat. 1024]

An Act To authorize for the fiscal years ending June 30, 1928, and June 30, 1929, appropriations for carrying out the provisions of the Act entitled "An Act for the promotion of the welfare and hygiene of maternity and infancy, and for other purposes," approved November 23, 1921, and for other purposes

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled*, That section 2 of the act entitled "An act for the promotion of the welfare and hygiene of maternity and infancy, and for other purposes," approved November 23, 1921, is amended by striking out the words "for the period of five years" wherever such words appear in such section and inserting in lieu thereof the words "for the period of seven years."

SEC. 2. That said act entitled "An act for the promotion of the welfare and hygiene of maternity and infancy, and for other purposes," approved November 23, 1921, shall, after June 30, 1929, be of no force and effect.

Approved, January 22, 1927.

## APPENDIX B.—ADMINISTRATIVE AGENCIES AND OFFICERS

*State administrative agencies and names of the executive officers for the administration of the act for the promotion of the welfare and hygiene of maternity and infancy (as of June 30, 1929)*

State (and Territory)	Administrative agency and department	Director
Alabama.....	Bureau of child hygiene and public-health nursing, State board of health (Montgomery).	Jessie L. Marriner, R. N.
Arizona.....	Child-hygiene division, State board of health (Phoenix).	Mrs. Charles R. Howe.
Arkansas.....	Bureau of child hygiene, State board of health (Little Rock).	Dr. C. W. Garrison. <sup>1</sup>
California.....	Bureau of child hygiene, State department of health (San Francisco).	Dr. Ellen S. Stadtmuller. <sup>2</sup>
Colorado.....	Child-welfare bureau, State department of public instruction (Denver).	Mrs. Estelle N. Mathews. <sup>3</sup>
Connecticut.....	Bureau of child hygiene, State department of health (Hartford).	Dr. A. Elizabeth Ingraham.
Delaware.....	Division of child hygiene, State board of health (Dover).	Dr. Clealand A. Sargent.
Florida.....	Bureau of child hygiene and public-health nursing, State board of health (Jacksonville).	Mrs. Laurie Jean Reid, R. N.
Georgia.....	Division of child hygiene, State board of health (Atlanta).	Dr. Joe P. Bowdoin.
Hawaii.....	Division of maternity and infancy, Territorial board of health (Honolulu).	Mabel L. Smyth, R. N.
Idaho.....	Bureau of child hygiene, State department of public welfare (Boise).	C. K. Macy. <sup>1</sup>
Illinois.....	Division of child hygiene and public-health nursing, State department of public health (Springfield).	Dr. Grace S. Wightman.
Indiana.....	Division of infant and child hygiene, State board of health (Indianapolis).	Dr. Ada E. Schweitzer.
Iowa.....	Division of maternity and infant hygiene, State University of Iowa, State board of education (Iowa City).	Edward H. Lauer, Ph. D.
Kansas.....	Division of child hygiene, State board of health (Topeka).	Dr. J. C. Montgomery.
Kentucky.....	Bureau of maternal and child health, State board of health (Louisville).	Dr. Annie S. Veech.
Louisiana.....	Bureau of child hygiene, State department of health (New Orleans).	Agnes Morris.
Maine.....	Division of public-health nursing and child hygiene, State department of health (Augusta).	Edith L. Soule, R. N.
Maryland.....	Bureau of child hygiene, State department of health (Baltimore).	Dr. J. H. Mason Knox, jr. <sup>2</sup>
Massachusetts.....	Division of hygiene, State department of public health (Boston).	Dr. M. Luise Diez.
Michigan.....	Bureau of child hygiene and public-health nursing, State department of health (Lansing).	Dr. Lillian R. Smith.
Minnesota.....	Division of child hygiene, State department of health (Minneapolis).	Dr. E. C. Hartley.
Mississippi.....	Bureau of child hygiene and public-health nursing, State board of health (Jackson).	Dr. F. J. Underwood. <sup>1</sup>
Missouri.....	Division of child hygiene, State board of health (Jefferson City).	Dr. Irl Brown Krause.
Montana.....	Child-welfare division, State board of health (Helena).	Dr. Ma Belle True.
Nebraska.....	Division of child hygiene, bureau of health, State department of public welfare (Lincoln).	Louise M. Murphy, R. N.
Nevada.....	Child-welfare division, State board of health (Reno).	Mrs. S. H. Wheeler. <sup>3</sup>
New Hampshire.....	Division of maternity, infancy, and child hygiene, State board of health (Concord).	Mrs. Mary D. Davis, R. N.
New Jersey.....	Bureau of child hygiene, State department of health (Trenton).	Dr. Julius Levy. <sup>3</sup>
New Mexico.....	Division of child hygiene and public-health nursing, bureau of public health, State department of public welfare (Santa Fe).	Edith Hodgson, R. N. <sup>2</sup>
New York.....	Division of maternity, infancy, and child hygiene, State department of health (Albany).	Dr. Elizabeth M. Gardiner.
North Carolina.....	Bureau of maternity and infancy, State board of health (Raleigh).	Dr. George Collins.

<sup>1</sup> State health officer serving.

<sup>2</sup> Chief.

<sup>3</sup> Executive secretary

<sup>1</sup> State not cooperating.

<sup>2</sup> Consultant.

*State administrative agencies and names of the executive officers for the administration of the act for the promotion of the welfare and hygiene of maternity and infancy (as of June 30, 1929)*—Continued

State (and Territory)	Administrative agency and department	Director
North Dakota.....	Division of child hygiene and public-health nursing, State department of public health (Bismarck).	Dr. Maysil M. Williams.
Ohio.....	Division of child hygiene, State department of health (Columbus).	Dr. J. A. Frank. <sup>6</sup>
Oklahoma.....	Bureau of maternity and infancy, State department of public health (Oklahoma City).	Golda B. Slief, R. N. <sup>7</sup>
Oregon.....	Bureau of child hygiene, State board of health (Portland).	Dr. Fredrick D. Stricker. <sup>1</sup>
Pennsylvania.....	Preschool division, bureau of child health, State department of health (Harrisburg).	Dr. Mary Riggs Noble. <sup>2</sup>
Rhode Island.....	Division of child welfare, State board of health (Providence).	Dr. Marion A. Gleason.
South Carolina.....	Bureau of child hygiene and public-health nursing, State board of health (Columbia).	Ada Taylor Graham, R. N.
South Dakota.....	Division of child hygiene, State board of health (Waubay).	Florence E. Walker, R. N.
Tennessee.....	Division of child hygiene and public-health nursing, State department of public health (Nashville).	Dr. W. J. Breeding.
Texas.....	Bureau of child hygiene, State department of health (Austin).	Dr. H. N. Barnett.
Utah.....	Bureau of child hygiene, State board of health (Salt Lake City).	Dr. H. Y. Richards.
Vermont.....	State department of public health (Burlington).	Dr. Charles F. Dalton. <sup>1</sup>
Virginia.....	Bureau of child health, State department of health (Richmond).	Dr. Mary E. Brydon.
Washington.....	Division of public-health nursing and child hygiene, State department of health (Seattle).	Mrs. Mary Louise Allen, R. N. <sup>2</sup>
West Virginia.....	Division of child hygiene, State department of health (Charleston).	Dr. R. H. Paden.
Wisconsin.....	Bureau of child welfare and public-health nursing, State board of health (Madison).	Dr. Cora S. Allen.
Wyoming.....	Division of maternal and infant welfare, State department of public health (Cheyenne).	Dr. W. H. Hassed. <sup>1</sup>

<sup>1</sup> State health officer serving.

<sup>2</sup> Chief.

<sup>6</sup> Acting chief.

<sup>7</sup> Acting director.

# APPENDIX C.—INFANT AND MATERNAL MORTALITY RATES

TABLE I.—*Infant mortality rates, in urban and rural areas, and by color in States having 2,000 or more colored births annually; States in the United States birth-registration area, 1915-1928*

[Source: U. S. Bureau of the Census]

State	Deaths of infants under 1 year of age per 1,000 live births													
	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Area.....	100	101	94	101	87	86	76	76	77	71	72	73	65	69
Urban.....	103	104	100	108	89	91	78	80	78	72	73	74	65	69
Rural.....	94	97	88	94	84	81	74	72	76	69	70	72	64	68
White.....	99	99	91	97	83	82	72	73	73	67	68	70	61	64
Colored.....	181	185	151	161	131	132	108	110	117	113	111	112	100	106
Alabama.....													64	75
Urban.....													77	96
Rural.....													62	71
White.....													55	64
Colored.....													82	94
Arizona.....												121	130	142
Urban.....												111	115	133
Rural.....												125	136	145
Arkansas.....													61	67
Urban.....													82	76
Rural.....													59	66
White.....													56	61
Colored.....													77	86
California.....					70	74	66	71	73	67	69	63	62	62
Urban.....					64	68	60	64	66	62	62	56	57	55
Rural.....					79	83	75	81	83	74	79	72	70	72
White.....					70	74	66	71	73	67	69	63	62	62
Colored.....					73	77	69	77	72	70	65	65	69	65
Colorado.....														89
Urban.....														86
Rural.....														91
Connecticut.....	107	101	94	107	86	92	73	77	77	69	73	72	59	59
Urban.....	103	101	93	106	86	93	72	77	77	67	70	70	57	58
Rural.....	119	101	96	112	87	88	79	77	75	77	88	82	66	63
Delaware.....							98	100	104	95	91	93	71	78
Urban.....							93	100	99	91	87	87	71	71
Rural.....							103	101	110	100	94	100	71	86
Florida.....										82	74	75	67	67
Urban.....										88	87	85	69	65
Rural.....										80	68	70	67	68
White.....										70	60	62	56	55
Colored.....										107	105	107	93	95
Georgia.....														82
Urban.....														99
Rural.....														77
White.....														68
Colored.....														104
Idaho.....												63	50	59
Urban.....												59	53	53
Rural.....												63	50	60
Illinois.....								76	82	71	73	69	64	64
Urban.....								81	85	75	74	68	64	63
Rural.....								68	77	65	70	72	66	66
White.....								75	79	68	70	68	62	62
Colored.....								125	157	141	122	109	105	105



TABLE I.—*Infant mortality rates, in urban and rural areas, and by color in States having 2,000 or more colored births annually; States in the United States birth-registration area, 1915-1928—Continued*

State	Deaths of infants under 1 year of age per 1,000 live births													
	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Indiana.....			86	87	79	82	71	67	71	65	68	72	59	63
Urban.....			100	104	88	96	79	76	78	73	75	78	63	67
Rural.....			78	77	74	72	66	61	65	59	62	68	55	59
White.....			(1)	(1)	(1)	(1)	(1)	(1)	(1)	63	66	70	57	(1)
Colored.....			(1)	(1)	(1)	(1)	(1)	(1)	(1)	140	119	145	96	(1)
Iowa.....										55	56	59	55	53
Urban.....										66	70	72	67	67
Rural.....										50	50	53	50	47
Kansas.....			77	80	70	73	63	65	63	59	62	65	55	59
Urban.....			98	106	83	92	73	79	78	70	72	76	62	69
Rural.....			73	73	65	67	59	60	57	54	58	61	53	55
Kentucky.....			87	93	82	73	62	69	72	65	71	75	61	70
Urban.....			103	119	105	90	72	83	89	79	85	92	71	77
Rural.....			85	90	78	70	60	67	68	62	67	72	59	68
White.....			82	87	77	69	58	64	67	61	67	71	58	66
Colored.....			152	191	147	138	110	157	157	119	119	134	109	118
Louisiana.....													77	78
Urban.....													89	83
Rural.....													73	76
White.....													58	64
Colored.....													109	102
Maine.....	105	108	93	101	91	102	88	86	89	81	76	80	80	73
Urban.....	109	128	107	109	89	110	79	97	89	88	79	86	86	82
Rural.....	104	102	89	98	91	98	92	82	88	78	75	77	77	68
Maryland.....		121	120	140	105	104	94	94	95	86	90	87	81	80
Urban.....		120	116	146	98	105	87	93	87	84	82	83	81	82
Rural.....		122	123	135	115	103	102	96	104	88	101	92	81	77
White.....		101	101	124	92	90	81	81	80	76	76	74	68	67
Colored.....		209	201	215	160	164	147	147	155	128	146	137	134	128
Massachusetts.....	101	100	98	113	88	91	76	81	78	68	73	73	65	64
Urban.....	103	103	99	115	90	92	76	82	78	68	73	73	65	65
Rural.....	92	87	91	104	82	83	77	76	75	66	74	72	64	63
Michigan.....	86	96	88	89	90	92	79	75	80	72	75	77	68	69
Urban.....	96	106	97	97	97	100	81	81	85	75	79	82	70	74
Rural.....	78	87	80	81	82	82	75	67	74	68	71	70	64	62
White.....	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	79	71	73	76	66	68
Colored.....	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	147	126	149	124	102	126
Minnesota.....	70	70	67	71	67	66	59	58	62	57	60	58	52	54
Urban.....	77	78	75	79	68	71	59	60	62	56	61	57	48	55
Rural.....	67	66	64	67	66	64	59	56	62	57	60	58	54	53
Mississippi.....							68	68	68	71	68	70	67	74
Urban.....							95	87	86	94	87	77	88	86
Rural.....							66	66	67	69	67	69	64	72
White.....							53	56	53	55	53	59	55	61
Colored.....							85	79	82	88	83	81	78	86
Missouri.....													60	66
Urban.....													63	68
Rural.....													57	64
White.....													57	62
Colored.....													112	123
Montana.....														
Urban.....								70	71	67	71	77	66	61
Rural.....								78	72	72	73	77	58	59
Colored.....								68	71	65	70	77	70	62
Nebraska.....						64	59	57	57	55	58	59	51	53
Urban.....						86	74	71	71	68	69	68	60	59
Rural.....						58	54	53	53	51	54	56	48	51
New Hampshire.....	110	115	110	113	93	88	87	80	93	80	76	79	69	69
Urban.....	131	133	132	124	101	97	95	90	102	81	87	82	72	74
Rural.....	89	97	86	102	85	78	78	69	84	78	65	75	66	64

1 Not shown for years in which the number of colored births was less than 2,000.

TABLE I.—*Infant mortality rates, in urban and rural areas, and by color in States having 2,000 or more colored births annually; States in the United States birth-registration area, 1915-1928—Continued*

State	Deaths of infants under 1 year of age per 1,000 live births													
	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
New Jersey.....							74	79	72	70	69	70	61	65
Urban.....							74	79	71	70	68	69	61	66
Rural.....							74	77	74	69	70	72	62	63
White.....							71	76	69	67	65	67	58	61
Colored.....							139	129	124	125	125	122	113	124
New York.....	99	94	91	97	84	86	75	77	72	69	68	71	59	65
Urban.....	102	97	93	98	85	88	76	78	71	70	68	70	59	66
Rural.....	89	83	85	93	77	78	74	72	76	67	66	71	62	62
White.....	98	93	90	95	82	85	74	76	71	68	66	68	57	63
Colored.....	191	169	176	175	151	159	138	124	121	114	119	132	109	123
North Carolina.....			100	102	84	85	75	80	81	82	79	82	79	86
Urban.....			159	168	124	113	97	96	109	100	104	106	106	110
Rural.....			96	98	82	81	72	77	77	79	74	78	74	81
White.....			85	85	74	73	66	70	70	70	67	71	66	75
Colored.....			133	140	109	113	95	101	106	110	105	107	109	109
North Dakota.....										67	72	69	63	59
Urban.....										68	49	72	47	50
Rural.....										67	74	69	66	61
Ohio.....			92	94	90	83	75	72	75	67	70	76	62	66
Urban.....			103	100	94	89	76	76	75	70	71	78	64	70
Rural.....			79	87	85	74	73	65	75	62	67	72	59	61
White.....			91	92	88	81	73	70	72	64	67	73	60	64
Colored.....			158	178	157	153	122	111	139	113	127	128	103	113
Oklahoma.....														69
Urban.....														78
Rural.....														67
White.....														65
Colored.....														131
Oregon.....					63	62	51	58	57	54	51	52	48	47
Urban.....					69	60	50	59	53	51	48	39	47	44
Rural.....					59	63	52	58	60	55	53	62	48	49
Pennsylvania.....	110	114	111	129	100	97	88	88	90	79	82	82	69	72
Urban.....	110	114	113	130	99	99	86	89	87	80	81	81	68	74
Rural.....	110	114	109	128	101	95	89	87	94	77	83	83	70	70
White.....	108	113	109	126	98	95	86	86	88	76	80	80	67	70
Colored.....	184	180	194	226	151	167	134	142	151	138	131	139	112	116
Rhode Island.....	120	111	108	126	(?)	(?)	93	85	94	80	73	82	67	67
Urban.....	118	116	109	127			94	86	94	81	74	82	65	68
Rural.....	129	93	101	118			86	79	94	73	69	82	78	64
South Carolina.....					113	116	96	93	96	102	(?)	(?)	(?)	97
Urban.....					139	150	127	105	117	121				117
Rural.....					111	112	92	91	94	99				94
White.....					76	83	69	67	70	77				78
Colored.....					149	148	123	119	125	127				115
*Tennessee.....													71	81
Urban.....														86
Rural.....														75
White.....														73
Colored.....													107	121
Utah.....			69	64	71	71	73	69	59	64	56	75	54	59
Urban.....			66	66	74	69	69	70	61	59	49	70	54	55
Rural.....			71	63	69	72	75	68	58	67	60	78	54	61
Vermont.....	85	93	85	93	85	96	78	73	76	70	72	72	70	65
Urban.....	116	128	108	119	121	117	102	98	92	78	66	72	65	61
Rural.....	80	86	81	88	79	92	73	68	73	68	74	72	71	66
Virginia.....			98	103	91	84	79	77	84	78	81	84	75	76
Urban.....			129	145	106	107	95	94	98	93	97	103	89	91
Rural.....			91	93	87	77	74	72	80	73	76	78	72	72
White.....			80	86	78	72	68	65	71	66	67	72	62	64
Colored.....			137	141	120	110	103	102	115	104	111	111	106	104

\* Dropped from birth-registration area.

TABLE I.—*Infant mortality rates, in urban and rural areas, and by color in States having 2,000 or more colored births annually; States in the United States birth-registration area, 1915-1928—Continued*

State	Deaths of infants under 1 year of age per 1,000 live births													
	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Washington.....			69	69	63	66	55	62	57	56	56	56	50	48
Urban.....			62	67	59	64	55	58	51	52	50	54	47	43
Rural.....			75	71	67	69	56	65	62	61	64	59	53	54
West Virginia.....											80	82	72	70
Urban.....											93	93	84	78
Rural.....											77	79	69	69
White.....											78	79	70	69
Colored.....											110	124	101	95
Wisconsin.....			78	79	80	77	72	71	70	65	67	69	59	61
Urban.....			92	99	94	90	79	78	77	67	71	74	61	64
Rural.....			69	67	71	68	68	67	65	63	64	65	58	60
Wyoming.....								79	80	64	64	76	69	68
Urban.....								104	102	73	51	78	64	78
Rural.....								73	73	62	67	75	70	66
District of Columbia.....	111	106	97	112	85	91	83	85	92	76	87	85	68	65
White.....	83	83	71	85	67	72	68	64	71	62	67	67	49	46
Colored.....	173	158	160	188	132	139	122	134	143	108	132	123	109	107

TABLE II.—*Maternal mortality rates, in urban and rural areas, and by color in States having 2,000 or more colored births annually; States in the United States birth-registration area, 1915-1928*

[Source: U. S. Bureau of the Census]

State	Deaths of mothers from causes associated with pregnancy and childbirth per 10,000 live births													
	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Area.....	61	62	66	92	74	80	68	66	67	66	65	66	65	69
Urban.....	64	65	70	96	79	86	77	73	74	73	73	74	75	78
Rural.....	55	57	62	87	69	74	59	59	58	58	55	57	55	62
White.....	60	61	63	89	70	76	64	63	63	61	60	62	59	63
Colored.....	106	118	118	139	124	128	108	107	109	118	116	107	113	121
Alabama.....													80	94
Urban.....													110	153
Rural.....													73	82
White.....													62	76
Colored.....													112	128
Arizona.....												102	89	77
Urban.....												108	125	69
Rural.....												101	75	80
Arkansas.....													90	88
Urban.....													135	129
Rural.....													86	84
White.....													72	70
Colored.....													151	151
California.....					80	77	68	72	67	59	60	56	58	61
Urban.....					88	85	78	77	71	63	65	59	61	64
Rural.....					69	65	55	65	63	54	53	53	52	57
White.....					82	78	71	73	69	57	60	56	56	60
Colored.....					57	65	45	63	54	89	66	56	77	68
Colorado.....														96
Urban.....														114
Rural.....														84
Connecticut.....	56	49	51	75	62	68	53	57	57	57	49	58	55	53
Urban.....	63	51	55	74	69	75	58	62	62	60	55	60	57	56
Rural.....	36	42	37	79	42	38	32	37	38	43	21	48	45	37

TABLE II.—*Maternal mortality rates, in urban and rural areas, and by color in States having 2,000 or more colored births annually; States in the United States birth-registration area, 1915-1928—Continued*

State	Deaths of mothers from causes associated with pregnancy and childbirth per 10,000 live births													
	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Delaware.....							63	66	84	77	77	93	59	56
Urban.....							102	61	90	83	102	109	85	70
Rural.....							21	72	77	71	52	76	33	42
Florida.....										121	121	107	110	101
Urban.....										109	131	101	98	80
Rural.....										126	117	110	115	110
White.....										90	102	90	90	91
Colored.....										187	163	148	157	125
Georgia.....														107
Urban.....														136
Rural.....														98
White.....														85
Colored.....														144
Idaho.....												57	160	68
Urban.....												75	63	51
Rural.....												55	60	70
Illinois.....								63	64	62	58	65	56	57
Urban.....								67	71	70	65	70	63	61
Rural.....								57	53	48	47	56	40	49
White.....								62	60	56	63	53	56	56
Colored.....								112	138	109	100	105	110	111
Indiana.....			73	104	84	87	69	66	65	58	60	65	66	62
Urban.....			87	124	103	105	86	84	77	66	80	81	81	81
Rural.....			64	92	73	75	56	53	55	52	44	51	52	45
White.....			(1)	(1)	(1)	(1)	(1)	(1)	(1)	57	58	62	64	(1)
Colored.....			(1)	(1)	(1)	(1)	(1)	(1)	(1)	96	121	134	111	(1)
Iowa.....										60	56	60	59	48
Urban.....										79	81	88	89	67
Rural.....										52	45	49	46	40
Kansas.....			76	114	82	84	64	76	68	63	65	70	63	77
Urban.....			92	152	108	102	85	108	105	83	83	93	85	110
Rural.....			72	106	76	79	58	65	55	55	58	61	54	64
Kentucky.....			60	80	63	64	63	61	60	62	60	58	49	60
Urban.....			98	119	92	94	93	97	80	88	83	75	62	78
Rural.....			55	74	59	59	57	54	56	56	54	55	47	55
White.....			56	75	59	60	57	54	54	57	54	55	45	55
Colored.....			108	154	125	130	148	185	154	131	138	106	109	125
Louisiana.....													91	114
Urban.....													123	162
Rural.....													77	92
White.....													70	90
Colored.....													126	154
Maine.....	68	78	67	86	86	85	74	76	87	82	72	67	80	74
Urban.....	82	81	94	97	92	104	101	102	98	126	102	107	123	101
Rural.....	63	77	59	82	84	77	63	64	82	63	59	50	60	62
Maryland.....		64	68	95	84	76	67	59	60	66	58	58	58	65
Urban.....		76	72	94	90	78	70	60	63	72	74	69	73	72
Rural.....		53	64	96	76	73	63	59	56	58	37	42	36	56
White.....		56	61	86	76	66	60	53	54	57	51	47	54	56
Colored.....		98	98	138	115	118	96	84	83	102	89	98	72	100
Massachusetts.....	57	60	65	92	71	75	65	68	63	65	63	64	63	64
Urban.....	60	64	70	96	75	78	68	73	68	69	66	67	67	65
Rural.....	47	42	40	74	51	54	48	37	34	38	45	47	35	59
Michigan.....	67	68	74	86	77	93	69	69	70	65	61	67	68	66
Urban.....	73	73	76	97	83	98	71	73	82	73	72	77	78	78
Rural.....	62	64	72	76	71	87	65	63	55	55	53	52	53	48
White.....	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	69	64	62	66	66	65
Colored.....	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	122	116	127	110	123	116
Minnesota.....	52	55	56	78	67	79	57	49	60	50	53	57	44	57
Urban.....	54	62	60	88	64	90	81	54	77	58	60	76	43	78
Rural.....	51	51	54	74	69	72	44	47	50	45	48	45	45	43

<sup>1</sup> Not shown for years in which the number of colored births was less than 2,000.

TABLE II.—*Maternal mortality rates, in urban and rural areas, and by color in States having 2,000 or more colored births annually; States in the United States birth-registration area, 1915-1928—Continued*

State	Deaths of mothers from causes associated with pregnancy and childbirth per 10,000 live births													
	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
Mississippi.....							95	83	88	95	98	79	87	94
Urban.....							180	202	162	149	163	130	158	154
Rural.....							88	73	82	90	92	74	79	88
White.....							71	65	66	65	67	65	61	76
Colored.....							120	100	109	126	129	92	111	112
Missouri.....													67	70
Urban.....													81	84
Rural.....													58	59
White.....													64	68
Colored.....													131	106
Montana.....								79	75	66	81	80	66	75
Urban.....								86	85	94	80	114	103	105
Rural.....								77	72	56	82	69	54	64
Nebraska.....						71	66	58	58	63	57	66	59	60
Urban.....						101	105	90	101	90	89	105	91	90
Rural.....						63	55	49	44	55	47	54	49	51
New Hampshire.....	61	72	70	78	80	71	62	65	74	61	71	76	65	63
Urban.....	69	76	67	74	87	76	63	70	63	52	83	80	59	62
Rural.....	53	69	73	82	72	66	62	59	86	71	59	71	71	65
New Jersey.....							59	64	57	62	64	58	63	59
Urban.....							68	71	64	73	75	65	71	65
Rural.....							35	48	40	37	40	41	44	44
White.....							56	62	55	59	63	56	59	57
Colored.....							125	119	97	117	91	84	110	89
New York.....	59	54	57	80	62	69	63	60	57	59	60	57	61	59
Urban.....	59	54	56	79	64	68	65	62	59	62	63	59	63	62
Rural.....	53	55	64	83	56	71	53	52	50	44	45	50	46	50
White.....	58	54	56	79	61	67	61	59	57	57	58	54	58	57
Colored.....	97	96	118	114	141	142	139	97	85	93	102	117	126	102
North Carolina.....			82	108	93	100	73	80	80	77	87	88	66	78
Urban.....			118	187	168	168	120	128	114	124	132	154	112	145
Rural.....			80	103	88	92	68	73	75	70	79	77	57	67
White.....			68	94	82	86	61	70	67	66	68	71	51	67
Colored.....			115	139	118	132	102	99	107	104	128	126	99	105
North Dakota.....										57	62	43	51	57
Urban.....										100	62	70	105	54
Rural.....										51	61	39	43	58
Ohio.....			71	97	74	80	72	66	72	64	68	67	62	64
Urban.....			81	104	83	91	85	78	84	76	82	81	76	77
Rural.....			59	87	62	63	55	51	54	47	47	47	41	45
White.....			70	96	72	78	71	64	68	62	64	64	60	62
Colored.....			136	138	126	120	116	133	158	102	130	116	104	106
Oklahoma.....														71
Urban.....														118
Rural.....														60
White.....														64
Colored.....														19
Oregon.....					101	94	74	83	69	65	72	59	64	61
Urban.....					124	82	73	92	79	73	72	66	75	63
Rural.....					87	103	75	77	62	60	73	54	56	60
Pennsylvania.....	64	70	65	105	68	78	68	62	66	63	64	64	64	61
Urban.....	74	82	75	111	82	89	84	76	82	82	82	80	83	79
Rural.....	55	59	55	98	55	65	52	49	50	44	47	47	44	43
White.....	63	69	64	103	66	76	67	61	65	61	63	62	62	60
Colored.....	112	119	119	175	158	131	98	94	101	115	98	109	112	84
Rhode Island.....	66	58	63	98	(?)	(?)	71	55	63	63	52	60	64	60
Urban.....	73	63	70	104			76	58	70	67	58	62	71	66
Rural.....	36	36	36	70			39	41	19	42	15	44	21	22

<sup>2</sup> Dropped from birth-registration area.

TABLE II.—*Maternal mortality rates, in urban and rural areas, and by color in States having 2,000 or more colored births annually; States in the United States birth-registration area, 1915-1928—Continued*

State	Deaths of mothers from causes associated with pregnancy and childbirth per 10,000 live births													
	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928
South Carolina.....					112	122	98	107	97	108	(?)	(?)	(?)	109
Urban.....					170	163	178	141	140	178				170
Rural.....					106	117	88	102	92	100				100
White.....					78	90	78	85	74	76				88
Colored.....					144	154	118	128	122	141				129
Tennessee.....													71	89
Urban.....													120	135
Rural.....													56	74
White.....													59	76
Colored.....													135	153
Utah.....			59	86	84	79	73	55	50	45	52	49	75	49
Urban.....			68	106	114	113	93	66	73	59	77	70	100	58
Rural.....			56	78	70	62	63	50	38	37	38	37	61	43
Vermont.....	61	79	64	80	80	70	73	74	70	81	68	67	73	58
Urban.....	52	72	51	51	83	83	98	85	134	90	138	65	133	106
Rural.....	63	80	66	85	79	68	69	73	57	79	53	68	59	47
Virginia.....			82	107	83	86	70	72	74	65	70	80	62	75
Urban.....			130	161	92	133	113	112	99	100	95	123	104	121
Rural.....			71	95	80	74	59	61	67	56	63	67	50	62
White.....			64	96	66	75	57	58	60	50	53	71	48	59
Colored.....			121	132	119	111	99	102	108	100	110	100	94	114
Washington.....			74	99	86	92	78	79	67	71	60	75	66	72
Urban.....			86	104	101	99	87	84	70	86	69	89	68	84
Rural.....			63	94	72	85	69	73	63	55	50	60	65	59
West Virginia.....											63	71	62	57
Urban.....											118	129	130	122
Rural.....											51	57	47	43
White.....											60	66	59	53
Colored.....											125	140	104	110
Wisconsin.....			57	60	48	67	58	56	58	60	52	60	53	58
Urban.....			58	69	62	82	74	67	70	67	63	71	56	69
Rural.....			57	54	40	58	48	49	50	56	44	50	50	49
Wyoming.....								71	73	98	95	93	87	65
Urban.....								111	114	126	139	59	125	39
Rural.....								62	62	90	84	102	79	70
District of Columbia.....	70	101	86	91	86	88	101	71	101	122	87	77	86	85
White.....	56	76	59	78	68	66	99	56	89	92	61	64	66	72
Colored.....	99	158	148	126	132	144	108	106	130	190	143	105	131	114

\* Dropped from birth-registration area.

TABLE III.—*Infant mortality rates for the United States and certain foreign countries; 1915-1928*

[Figures from official sources]

Country	Deaths of infants under 1 year of age per 1,000 live births														
	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	
Australia.....	68	70	56	59	69	69	66	53	61	57	53	54	54	-----	
Austria.....	218	192	186	193	156	157	154	156	141	127	119	123	124	120	
Belgium.....	-----	-----	-----	-----	109	110	122	114	100	95	100	104	-----	-----	
British India.....	202	203	206	267	224	195	198	175	176	189	174	189	167	-----	
Bulgaria.....	-----	-----	-----	146	110	146	158	155	165	150	152	127	-----	-----	
Canada.....	-----	-----	-----	-----	-----	100	88	87	88	79	102	94	-----	-----	
Chile.....	254	241	269	255	306	263	278	240	283	266	258	251	226	170	
Colombia.....	-----	-----	109	101	101	106	65	97	121	143	122	148	-----	-----	
Czechoslovakia.....	-----	-----	-----	-----	142	178	173	-----	147	148	146	154	157	-----	
Denmark.....	95	100	100	74	92	90	77	85	83	84	80	84	83	-----	
Egypt.....	-----	-----	-----	-----	128	137	133	140	143	150	155	146	152	-----	
England and Wales.....	110	91	96	97	89	80	83	77	69	75	75	70	70	65	
Estonia.....	-----	-----	-----	-----	-----	-----	105	103	100	96	102	115	-----	-----	
Finland.....	110	110	118	115	135	97	95	99	92	107	85	86	97	-----	
Germany.....	168	148	155	154	121	131	134	130	132	109	105	102	97	189	
Greece.....	-----	-----	-----	-----	-----	-----	68	82	92	98	-----	-----	-----	-----	
Guatemala.....	130	116	115	116	112	81	76	92	79	81	99	104	89	-----	
Hungary.....	-----	219	216	217	159	193	193	198	184	193	168	167	185	-----	
Irish Free State.....	85	81	84	80	84	78	73	69	66	72	68	74	71	68	
Italy.....	147	147	139	192	129	127	129	126	128	126	119	127	120	-----	
Japan.....	160	170	173	189	170	166	168	166	163	156	142	137	142	138	
Latvia.....	-----	-----	-----	-----	-----	128	93	91	88	101	107	88	96	-----	
Lithuania.....	-----	-----	-----	-----	-----	-----	-----	-----	-----	170	179	146	151	147	
The Netherlands.....	-----	-----	-----	103	93	83	85	77	66	61	58	61	59	52	
New Zealand.....	50	51	48	48	45	51	48	42	44	40	40	40	39	36	
Northern Ireland.....	107	89	97	101	95	94	87	77	76	85	86	85	78	78	
Norway.....	68	64	64	63	62	58	54	55	50	50	50	48	51	-----	
Salvador.....	-----	-----	-----	144	132	147	141	124	118	150	139	155	118	-----	
Santo Domingo.....	-----	-----	-----	-----	-----	-----	-----	-----	-----	77	47	53	48	-----	
Scotland.....	126	97	107	100	102	92	90	101	79	98	91	83	89	86	
Sweden.....	76	70	65	65	70	63	64	62	56	60	56	-----	-----	-----	
Switzerland.....	90	78	79	88	82	84	74	70	61	62	58	57	57	54	
U. S. birth-registration area <sup>2</sup> .....	100	101	94	101	87	86	76	76	77	71	72	73	65	69	
Uruguay.....	111	124	107	110	101	117	107	94	104	108	115	93	106	100	

<sup>1</sup> Provisional figures.<sup>2</sup> The United States birth-registration area expanded from 10 States in 1915 to 44 States in 1928.TABLE IV.—*Maternal mortality rates for the United States and certain foreign countries; 1915-1928*

[Figures from official sources]

Country	Deaths of mothers from causes associated with pregnancy and childbirth per 10,000 live births														
	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	
Australia.....	43	53	56	47	47	50	47	45	51	55	56	53	59	-----	
Belgium.....	-----	-----	-----	-----	72	60	57	53	56	58	50	61	-----	-----	
Canada.....	-----	-----	-----	-----	-----	-----	51	55	54	60	56	57	56	-----	
Chile.....	66	73	72	82	88	75	79	80	74	61	61	58	58	47	
Czechoslovakia.....	-----	-----	-----	-----	37	40	37	-----	133	131	133	134	136	-----	
Denmark.....	-----	-----	-----	-----	24	20	20	26	23	24	26	31	-----	-----	
England and Wales.....	42	41	39	38	44	43	39	38	38	39	41	41	41	44	
Estonia.....	-----	-----	-----	-----	-----	-----	-----	45	40	38	41	41	41	-----	
Finland.....	-----	36	38	44	40	36	33	30	31	35	29	32	30	-----	
Greece.....	-----	-----	-----	-----	-----	-----	73	72	85	88	-----	-----	-----	-----	
Hungary.....	-----	42	40	52	29	32	29	30	28	31	29	32	30	-----	
Irish Free State.....	53	57	49	48	47	49	50	57	48	48	47	49	45	49	
Italy.....	22	27	30	37	29	28	26	25	27	32	28	26	26	-----	
Japan.....	36	35	35	38	33	35	36	33	34	31	30	27	28	28	
Lithuania.....	-----	-----	-----	-----	-----	-----	-----	-----	-----	59	56	50	-----	-----	
The Netherlands.....	-----	-----	-----	29	33	24	23	25	23	24	26	29	29	134	
New Zealand.....	47	59	60	52	51	65	51	51	50	47	42	49	49	49	
Northern Ireland.....	56	50	51	47	46	69	52	47	49	45	44	56	48	52	
Norway.....	27	28	30	30	34	26	22	25	28	29	27	32	-----	-----	
Salvador.....	-----	-----	-----	-----	-----	57	57	46	50	57	50	56	63	-----	
Scotland.....	61	57	59	70	62	62	64	66	64	58	62	64	64	70	
Sweden.....	29	27	25	26	32	27	27	25	23	24	26	-----	-----	-----	
Switzerland.....	-----	54	56	51	57	56	55	51	46	48	43	44	37	-----	
U. S. birth-registration area <sup>1</sup> .....	61	62	66	92	74	80	68	66	67	66	65	66	65	69	
Uruguay.....	22	29	32	30	23	34	33	27	27	25	25	30	22	24	

<sup>1</sup> Provisional figures.<sup>2</sup> The United States birth-registration area expanded from 10 States in 1915 to 44 States in 1928.

## APPENDIX D.—PUBLICATIONS AND EXHIBITS OF THE CHILDREN'S BUREAU BEARING UPON MATERNAL, INFANT, AND CHILD WELFARE AND HYGIENE

### BULLETINS

- The Promotion of the Welfare and Hygiene of Maternity and Infancy—Report of the Administration of the Act of Congress of November 23, 1921, for the period March 20, 1922, to June 30, 1923. No. 137. 42 pp.
- The Promotion of the Welfare and Hygiene of Maternity and Infancy—Report of the Administration of the Act of Congress of November 23, 1921, for fiscal year ended June 30, 1924. No. 146. 56 pp.
- The Promotion of the Welfare and Hygiene of Maternity and Infancy—Report of the Administration of the Act of Congress of November 23, 1921, for fiscal year ended June 30, 1925. No. 156. 81 pp.
- The Promotion of the Welfare and Hygiene of Maternity and Infancy—Report of the Administration of the Act of Congress of November 23, 1921, for fiscal year ended June 30, 1926. No. 178. 95 pp.
- The Promotion of the Welfare and Hygiene of Maternity and Infancy—Report of the Administration of the Act of Congress of November 23, 1921, for fiscal year ended June 30, 1927. No. 186. 150 pp.
- The Promotion of the Welfare and Hygiene of Maternity and Infancy—Report of the Administration of the Act of Congress of November 23, 1921, for fiscal year ended June 30, 1928. No. 194. 180 pp. (The reports of the 45 cooperating States and the Territory of Hawaii are available as separate leaflets.)
- The Seven Years of the Maternity and Infancy Act; excerpts from Publication No. 203 (The Promotion of the Welfare and Hygiene of Maternity and Infancy, fiscal year ended June 30, 1929). 22 pp.
- <sup>1</sup> Proceedings of the Third Annual Conference of State Directors in Charge of the Local Administration of the Maternity and Infancy Act (act of Congress of November 23, 1921), Held in Washington, D. C., January 11–13, 1926. No. 157. 209 pp.
- The Physician's Part in a Practical State Program of Prenatal Care, by Fred L. Adair, M. D. Standards of Prenatal Care, by Robert L. De Normandie, M. D. Separate No. 1. 20 pp.
- The Nurse's Part in a State Program of Prenatal Care, by Carolyn Conant Van Blarcom, R. N. Separate No. 2. 8 pp.
- How to Make a Study of Maternal Mortality, by Robert L. De Normandie, M. D. Separate No. 3. 11 pp.
- A Demonstration of the Community Control of Rickets, by Martha M. Eliot, M. D. Separate No. 4. 5 pp.
- The Practical Application of Mental Hygiene to the Welfare of the Child, by D. A. Thom, M. D. Separate No. 6. 9 pp.
- Proceedings of the Fourth Annual Conference of State Directors in Charge of the Local Administration of the Maternity and Infancy Act (act of Congress of November 23, 1921), Held in Washington, D. C., January 11–13, 1927. No. 181. 167 pp.
- The Problem of Compulsory Notification of Puerperal Septicemia, by George Clark Mosher, M. D. Separate No. 1. 13 pp.
- The County Health Organization in Relation to Maternity and Infancy Work and Its Permanency, by John A. Ferrell, M. D. Separate No. 2. 12 pp.
- Evaluation of Maternity and Infancy Work in a Generalized Program, by Jessie L. Marriner. Separate No. 3. 4 pp.
- Breast-Feeding Demonstrations, by Frank Howard Richardson, M. D. Separate No. 4. 8 pp.
- Standards for Training of Public-Health Nurses, by Elizabeth Fox. Separate No. 6. 7 pp.

<sup>1</sup> Available only by purchase from the Superintendent of Documents, Government Printing Office, Washington, D. C.



- Papers delivered at the Fifth Annual Conference of State Directors in Charge of the Local Administration of the Maternity and Infancy Act, 1928:
- Prevention of Neonatal Mortality from the Obstetrician's Point of View, by Fred L. Adair, M. D.
  - Causes and Prevention of Neonatal Mortality, by Richard A. Bolt, M. D.
  - Midwifery in Denmark, by Dorothy Reed Mendenhall, M. D.
  - Rural Hospitals or Maternities of Canada, by Mrs. Jean T. Dillon, R. N.
  - Prenatal Care (revised 1930). No. 4. 71 pp.
  - Infant Care (revised, 1929). No. 8. 127 pp.
  - The Child from One to Six; his care and training. No. 30. (In preparation; to supersede Child Care.)
  - Child Management (revised), by D. A. Thom, M. D. No. 143. 47 pp.
  - Are You Training Your Child to Be Happy? Lesson material on child management. No. 202. 57 pp.
  - Standards of Prenatal Care; an outline for the use of physicians. No. 153. 4 pp. (Also sample form for pregnancy record.)
  - Breast Feeding. No. 83. 13 pp.
  - Standards for Physicians Conducting Conferences at Child-Health Centers. No. 154. 11 pp. (Also sample forms for conference record.)
  - How to Conduct a Children's Health Conference. No. 23. 24 pp.
  - Children's Health Centers. No. 45. 7 pp.
  - Milk, the Indispensable Food for Children, by Dorothy Reed Mendenhall, M. D. No. 163. 43 pp.
  - What Is Malnutrition? (revised), by Lydia J. Roberts. No. 59. 19 pp.
  - Nutrition Work for Preschool Children, by Agnes K. Hanna. No. 138. 25 pp.
  - Maternal Mortality; the risk of death in childbirth and from all diseases caused by pregnancy and confinement, by Robert Morse Woodbury, Ph. D. No. 158. 163 pp.
  - <sup>1</sup> References on the Physical Growth and Development of the Normal Child. No. 179. 353 pp.
  - The Hygiene of Maternity and Childhood—Outlines for Study. Separate No. 1 from Child Care and Child Welfare, prepared in cooperation with the Federal Board for Vocational Education. No. 90. 327 pp.
  - Causal Factors in Infant Mortality; a statistical study based on investigations in eight cities, by Robert Morse Woodbury, Ph. D. A consolidated report of the Children's Bureau studies in this field. No. 142. 245 pp.
  - Habit Clinics for the Child of Preschool Age; their organization and practical value, by D. A. Thom, M. D. No. 135. 71 pp.
  - Posture Clinics; organization and exercises, by Armin Klein, M. D. No. 164. 32 pp.
  - Posture Exercises; a handbook for schools and for teachers of physical education, by Armin Klein, M. D., and Leah C. Thomas. No. 165. 33 pp.
  - A Study of Maternity Homes in Minnesota and Pennsylvania. No. 167. 92 pp.
  - Recreation for Blind Children, by Martha Travilla Speakman. No. 171. 74 pp.
  - A Tabular Summary of State Laws Relating to Public Aid to Children in Their Own Homes in Effect January 1, 1929, and the text of the laws of certain States. Third edition. Chart No. 3. 37 pp.
  - Minimum Standards for Child Welfare Adopted by the Washington and Regional Conferences on Child Welfare, 1919. No. 62. 15 pp.
  - List of Psychiatric Clinics for Children in the United States. No. 191. 28 pp.
- FOLDERS**
- Minimum Standards of Prenatal Care. No. 1.
  - Backyard Playgrounds. No. 2.
  - Why Drink Milk? No. 3.
  - What Builds Babies? No. 4.
  - Sunlight for Babies. No. 5.
  - Breast Feeding. No. 8.
  - Keeping the Well Baby Well. No. 9.
  - Out of Babyhood into Childhood. No. 10.
  - Why Sleep? No. 11.
  - Your Child's Teeth. No. 12.

<sup>1</sup> Available only by purchase from the Superintendent of Documents, Government Printing Office, Washington, D. C.

## LEAFLETS AND DODGERS

Books and Pamphlets on Child Care (revised). No. 1.

Is Your Child's Birth Recorded? (revised). No. 3.

Federal Aid for the Protection of Maternity and Infancy, by Grace Abbott. 8 pp.

The Federal Government in Relation to Maternity and Infancy, by Grace Abbott. 10 pp.

The Children's Bureau; what it is, what it has done, and what it is doing for the children of the United States.

List of Publications.

List of Exhibits.

## SMALL CHARTS

Baby's Daily Time Cards (a series of six cards, 5 by 8 inches, a different color for each age period up to 2 years). Chart No. 14 (revised February, 1930).

EXHIBIT MATERIAL<sup>2</sup>

Infant Welfare (10 posters in colors, 22 by 28 inches).

Posture Standards (6 charts, 18 by 38 inches). To be purchased directly from the Government Printing Office at 50 cents for the set of six, or 25 cents for the three girls' charts or for the three boys' charts.

Well Born. (Two-reel film, showing time 30 minutes. Titles in English or Spanish. Made in 1923.)

Posture. (Two-reel film, showing time 20 minutes. Either reel may be used alone, the first being a general introduction suitable for parents and children.)

Sun Babies. (One-reel film, showing time 15 minutes. This shows how to give sun baths in order to prevent and cure rickets.)

The Best-Fed Baby. (One-reel film, showing time 15 minutes. This shows the importance of breast feeding.)

Trails That Lead to Mothers and Babies. (Film strip illustrating the work done under the maternity and infancy act.)

The Healthy Baby. (Film strip showing the care of the baby to 2 years of age.)

Rickets. (Film strip showing the effects of the disease and how it is prevented and cured.)

The Preschool Days of Betty Jones. (Film strip showing the care of the pre-school child.)

Teaching the Old Midwife New Tricks. (Film strip showing the method of instruction used in classes for midwives.)

The Care of the Baby (50 lantern slides).

Infant and Child Welfare (54 lantern slides).

City Playground for Children (model; weight, 109 pounds).

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<sup>2</sup> A descriptive list of Children's Bureau exhibits containing a statement of the conditions and procedure of loan and purchase can be had on application to the bureau.



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